VOL. XXXII. No. 5 MAY 1947

MECCANO MAGAZINE

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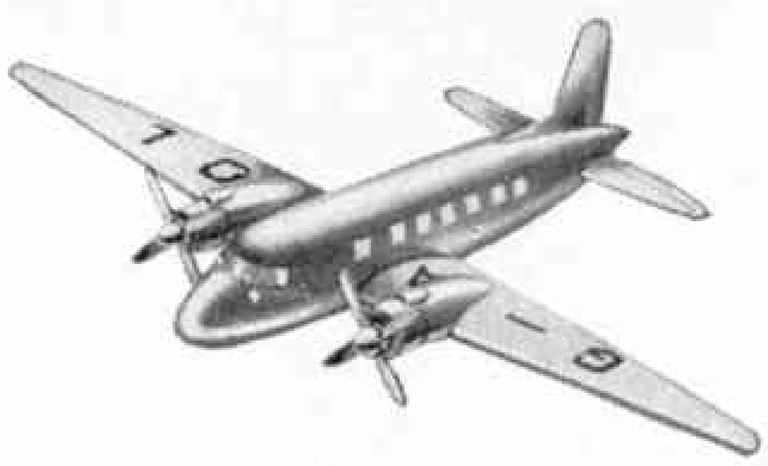

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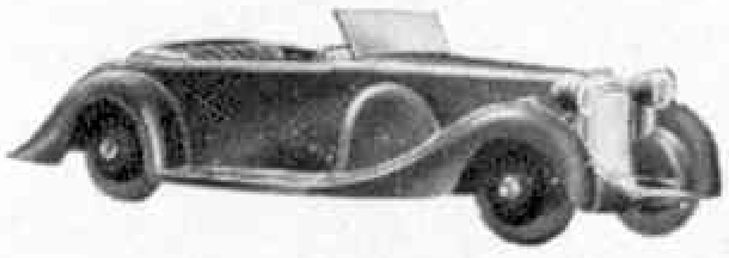

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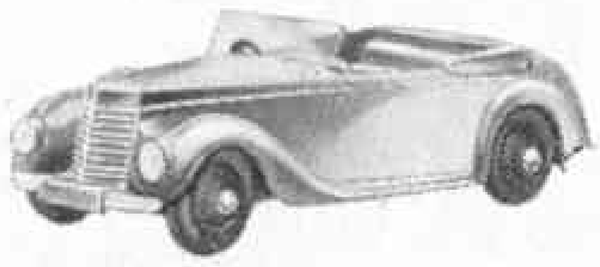

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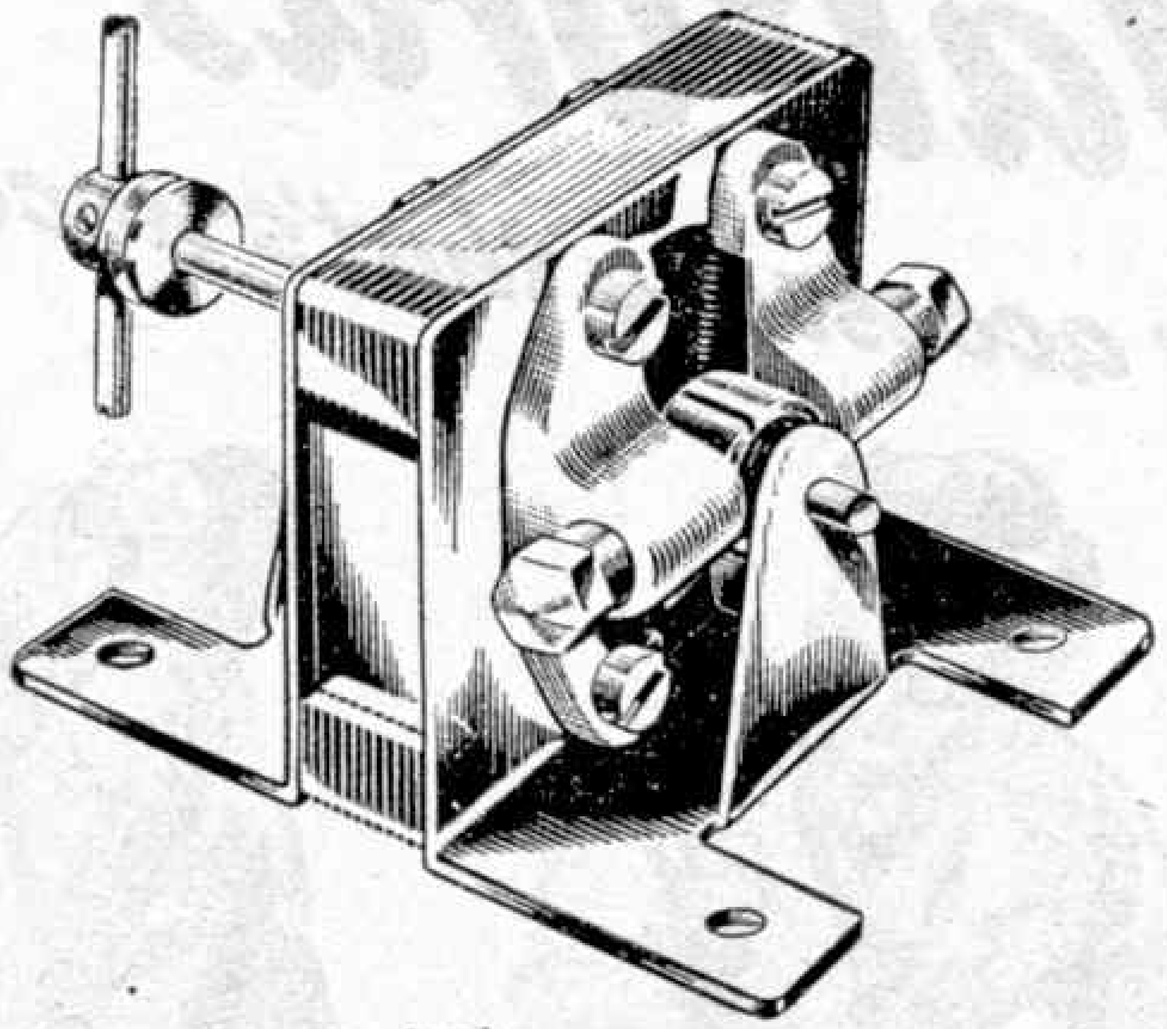

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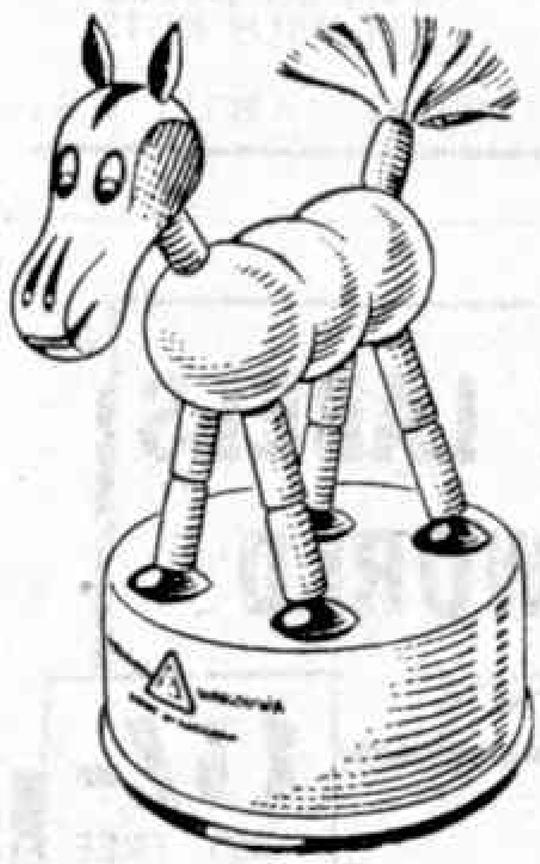

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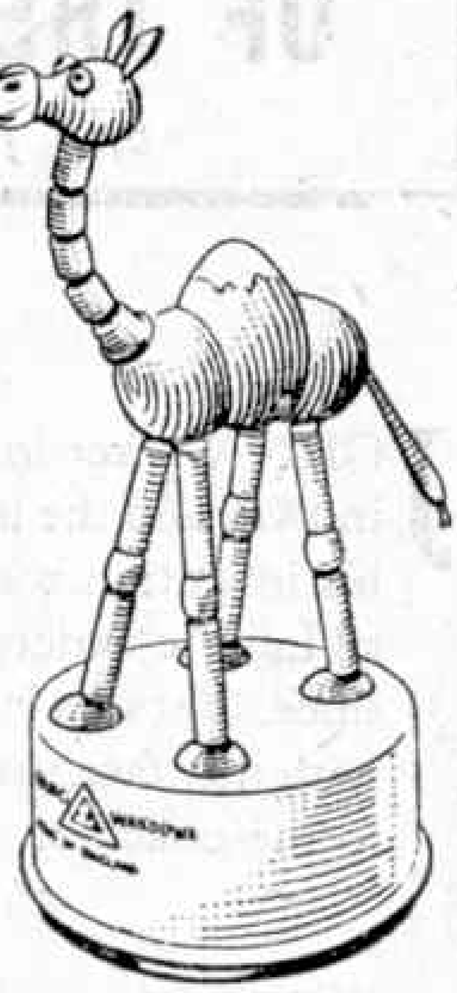

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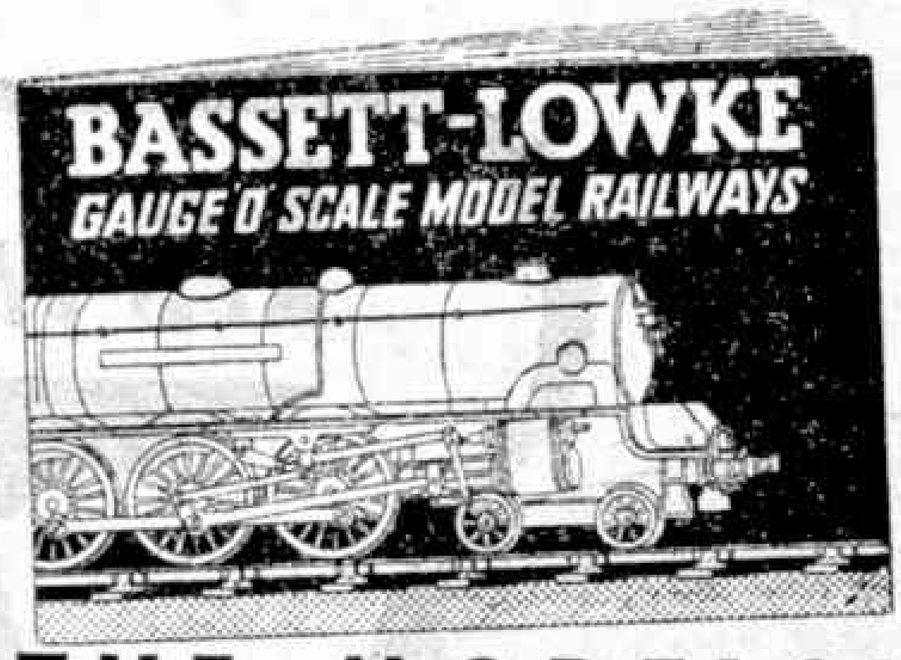

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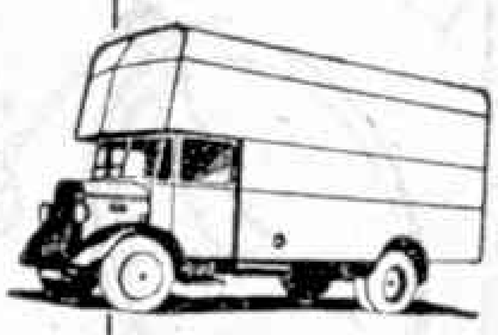

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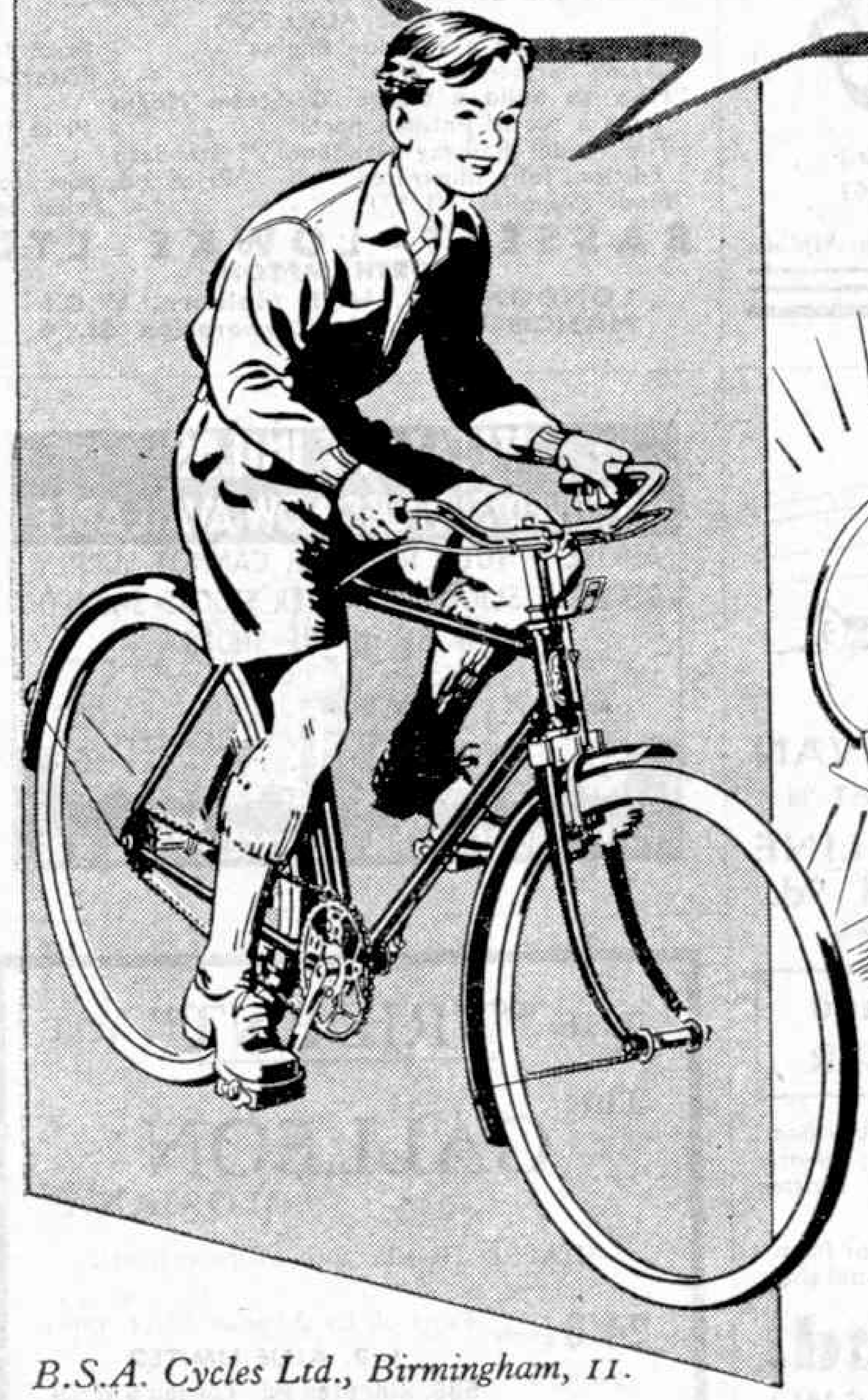

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Next Month: "MEET THE TUG FAMILY." By D. Rebbeck, M.A., M.Sc.

MECCANO MAGAZINE

Editorial Office:
Binns Road
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Vol. XXXII
No. 5
May 1947

With the Editor

A Model Railway Pioneer

By the recent death of Mr. Henry Greenly we have lost one of the pioneers of the Model Railway movement.

Greenly began his career in the Engineers' Department of the Metropolitan Railway. In 1922 he became Engineer to the Ravenglass and Eskdale narrow-gauge railway. This was probably the first serious attempt to run a 15 in. gauge railway on real business lines, in contrast to many other railways of this gauge that were built purely for the pleasure of their owners.

From 1926–1930 Greenly was Engineer and General Manager of the Romney, Hythe and Dymchurch Railway, a 15 in. gauge line that has the distinction of being a real public railway with its timetables included in "Bradshaw." Many of my readers will have had the thrill of riding behind "R.H. and D." locomotives such as *"Green Goddess"* or *"Southern Maid,"* the fascinating "Pacifics" designed by Greenly for this line. Any miniature railway is attractive, but one like the "R.H. and D," which is capable of carrying passengers and freight, is irresistibly fascinating. Greenly must have felt a wonderful thrill of satisfaction in the achievements of his miniature monsters.

He was closely connected also with many of the pioneer "Pleasure" railways such as those at Blackpool, Rhyl and elsewhere. For these railways he designed many fine steam locomotives, mostly of 15 in. gauge, which have given pleasure to thousands of people.

Greenly attained an international reputation as a narrow-gauge engineer, but to readers of the *"M.M."* his work as a pioneer of the miniature railway hobby was even more important. He drew up the first generally recognised standard dimensions for various gauges and scales, at a time when these matters were left largely to chance or to choice. He provided the designs for much of the miniature railway stock and equipment produced commercially by various firms, and he was the author of several books, which are now practically standard works, on model railway and locomotive subjects. He produced designs for a range of standard castings and parts readily adaptable to a variety of requirements, and these have formed the basis of very many successful miniature steam locomotives. In conjunction with Mr. W. J. Bassett-Lowke he carried out much valuable pioneer work in regard to Gauge 00 railways.

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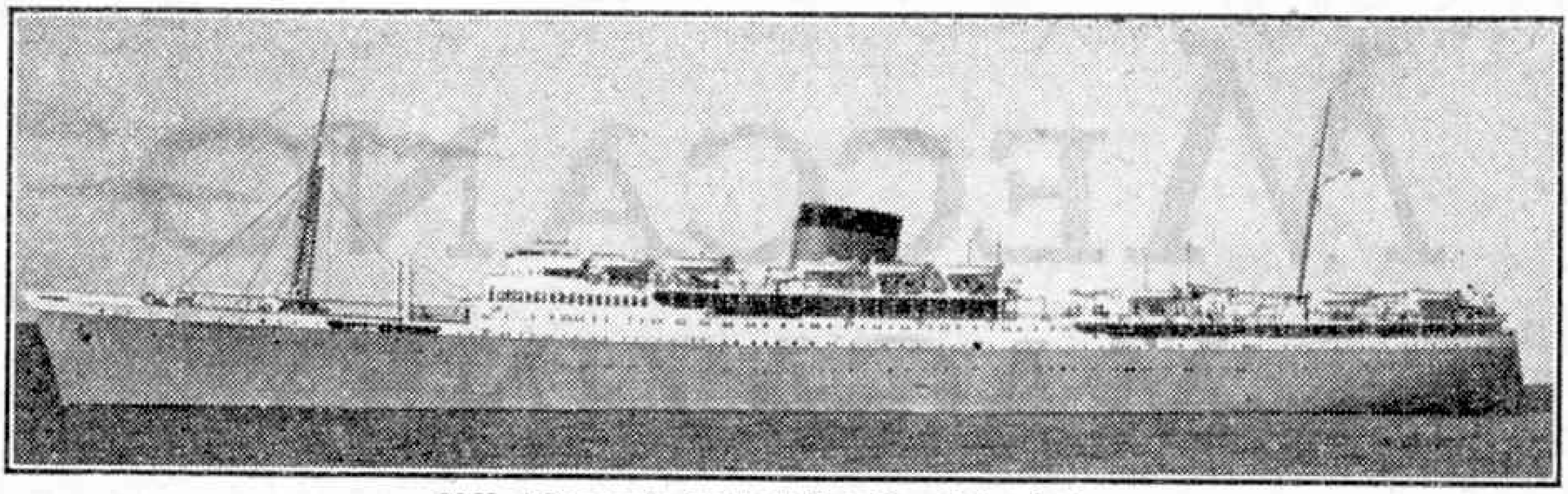


M.V. "Capetown Castle," flagship of the fleet.

The Union-Castle Line

By Denis Rebbeck, M.A., M.Sc., B.Litt., A.M.I.C.E., A.M.I.Mech.E., M.I.N.A.

EARLY in 1900 the two well-known steamship companies, the Union Steamship Co. Ltd., and the Castle Mail Packets Co. Ltd., were formally amalgamated under the title of the Union-Castle Mail Steamship Co. Ltd., the joint concern being managed by Messrs. Donald, Currie & Co., who were the managers of the Castle Line.

The Union Steamship Company came into existence in 1853 as the Union Steam Collier Company. It commenced business with a capital of £60,000 and a fleet of five small steamers. They began running a line between Southampton, Constantinople, and Smyrna, and a service between Southampton and Brazil with cargo, which was not an unqualified success. In 1858 a Government contract was obtained extending for a period of five years, with an annual subsidy of £30,000, for a monthly service to the Cape of Good Hope. The first boat to leave Southampton with the mails was the *"Dane"*; she sailed on 15th September of that year. After the first contract had expired it was renewed for a period of five years, and a further seven years in 1865.

In October 1876 a new mail contract with the Cape of Good Hope Government was entered into for a fortnightly service between Plymouth and Table Bay, and in this contract it was stipulated that the time occupied on the voyage must not exceed 26 days. In 1888 new contracts with the Colonial Governments were made, and the Company substituted Southampton for Plymouth as the outward mail port, and in the following year as the homeward mail port.

In 1889 the famous *"Scot"* was built, and six years later, Harland and Wolff Ltd., her builders, accomplished successfully at Belfast the task of lengthening the vessel by 54 ft. and adding 1,000 tons to her tonnage. Between 1893 and 1900 Harland and Wolff built no less than 10 vessels for this company, practically sister ships, for the intermediate trade. The last steamers to be built by the Union Steamship Company were the *"Normand,"* the *"Briton"* and the *"Saxon,"* all of over 12,000 tons, and with a length of about 570 ft. At the time of its absorption the fleet consisted of 20 vessels, of which nine were over 6,000 tons.

The Castle Line began its career in 1872 with two small vessels. At this time the postage to the Cape was one shilling per half-ounce, and the contract time for delivery was 37 days.

The first allowance made to the Castle Line for the conveyance of letters was in 1876, when the Cape Parliament divided the subsidy between the Union and the Castle Lines. The Castle Line did great service in carrying troops and stores during the South African war. When the amalgamation with the Union Line took place, the fleet had grown from two ships in 1876 to 20 ships in 1900, and from a total tonnage of 2,800 to 110,000. The result of the fusing of these two lines was that the Royal Mail steamships of the Union-Castle Line, under contract with the South African Government, sailed from Southampton every Saturday for the Cape of Good Hope and Natal, calling at Madeira.

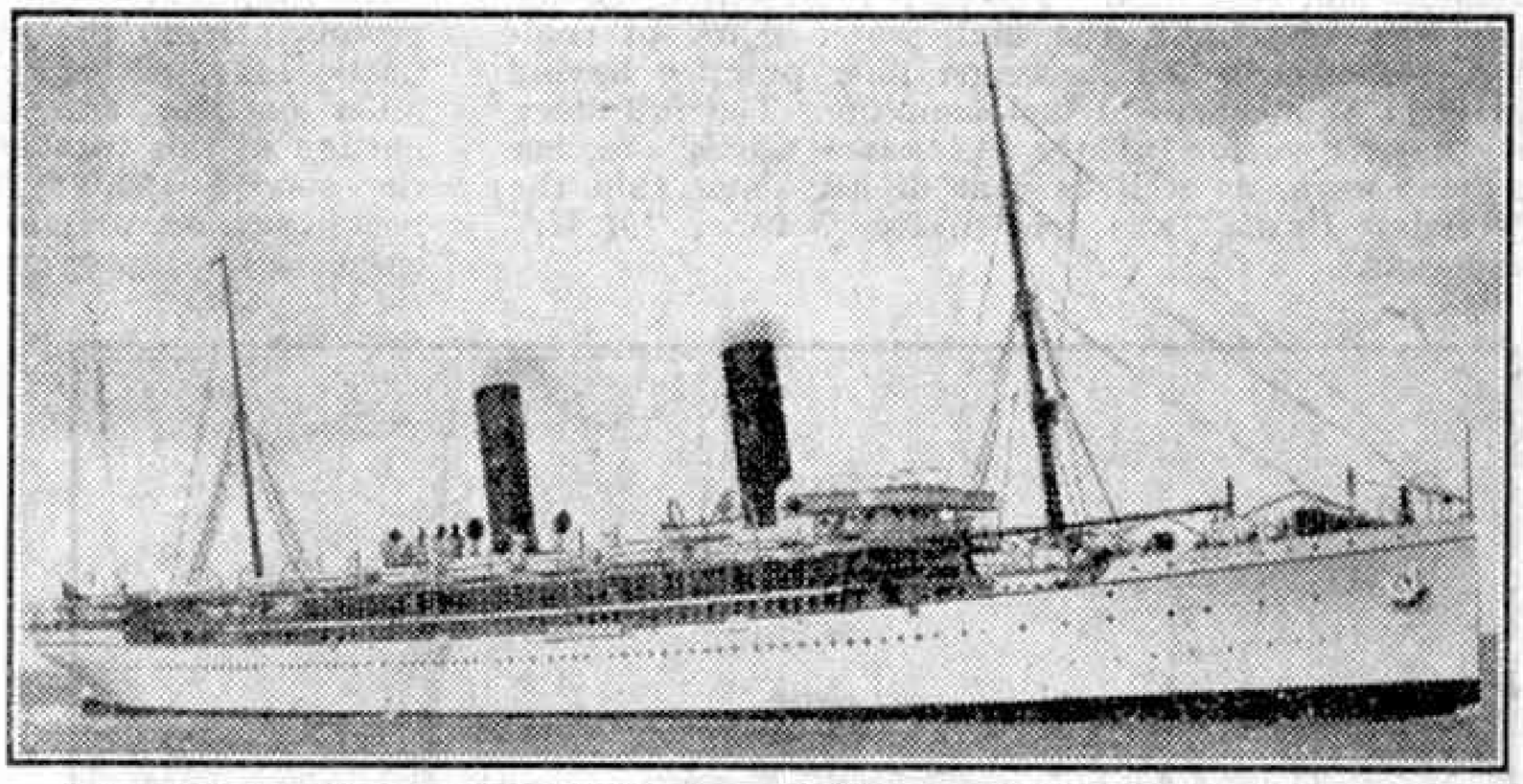
Two vessels became famous on this run, in the early part of this century, the *"Armadale Castle"* and the *"Kenilworth*

Castle," sister ships with a gross tonnage of 12,973 and having 12,500 horse power. For some time they were the largest and most powerful vessels employed in the South African trade, each had accommodation for about 320 first-class, 225 second-class and 280 third-class passengers.

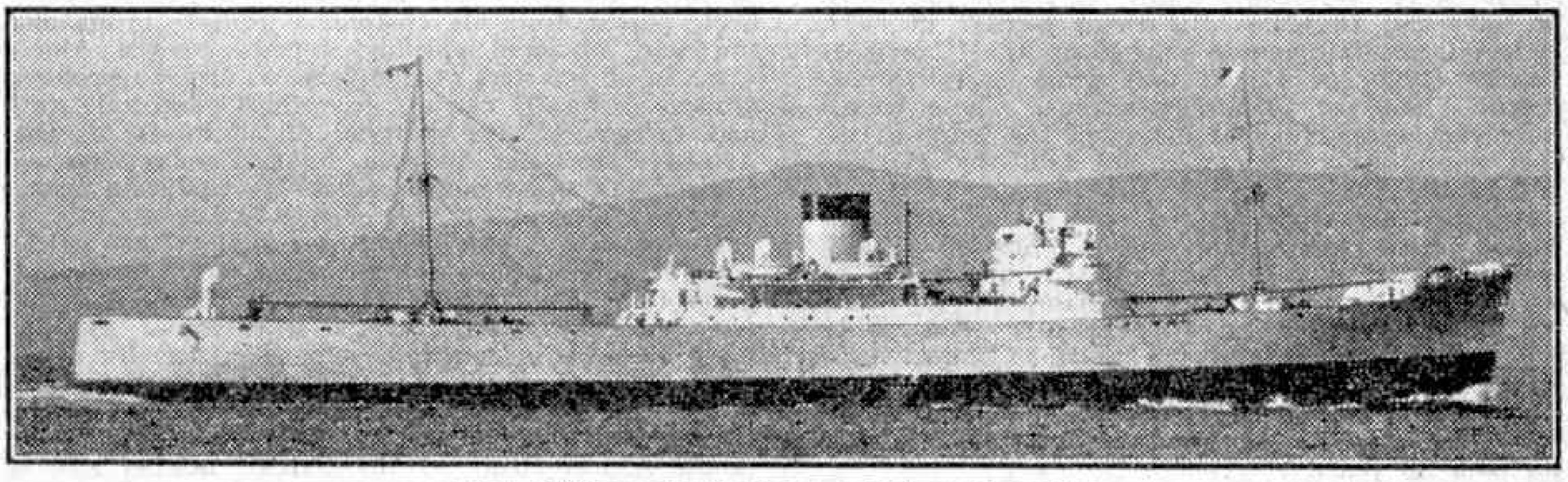
There is not space in this article to refer to more than a fraction of the many famous vessels which have sailed under the Union-Castle flag but one more "old-timer" may be mentioned before proceeding, because she was disposed of only two years ago and was very well known. This vessel was the *"Edinburgh Castle,"* a sister to the *"Balmoral Castle,"* and was built by Harland and Wolff Ltd. at Belfast in 1910, of 13,330 tons. She served four years in the mail service until the outbreak of war in 1914, when she was the last of the mail vessels to leave Capetown under the peace-time schedule. She was ordered to Gibraltar, and there embarked troops for England. She then spent most of her time as an armed merchant cruiser in Admiral Stoddart's squadron off the east coast of South America. In 1919, after being reconditioned by her original builders, she returned to the South African mail service. She made her last trip in this service in December 1938, and on her return from the Cape was laid up in Southampton Water as a stand-by mail steamer. She subsequently went to Freetown to serve as a floating base for the Royal Navy. When her work was done she was sunk by gunfire and depth charges some 70 miles from Sierra Leone. It seemed a better ending in some ways than being handed over to a firm of shipbreakers.

After the first World War the Union-Castle Company added two very fine large steamships to their fleet, the *"Windsor Castle"* and the *"Arundel Castle."* The latter, which was modernised during the 1930s and which forms our cover illustration this month, was built by Harland and Wolff Ltd., Belfast. She is a twin screw passenger steamship having the following dimensions: length 650 ft., breadth 72 ft., gross tonnage 18,000. In her original form the *"Arundel Castle"* was two-masted, fore and aft schooner rigged and, having a straight stem and a cruiser stern, she differed from the earlier vessels of the fleet. At the time of her completion in 1920 this ship and her sister marked a great advance in the size and type of South African liners. In size and modernity she was superseded eventually by the motor liners, but her profile with four funnels gave her a distinction of appearance which would be difficult to improve upon.

The *"Arundel Castle's"* hull has lower, middle and upper decks, continuous all



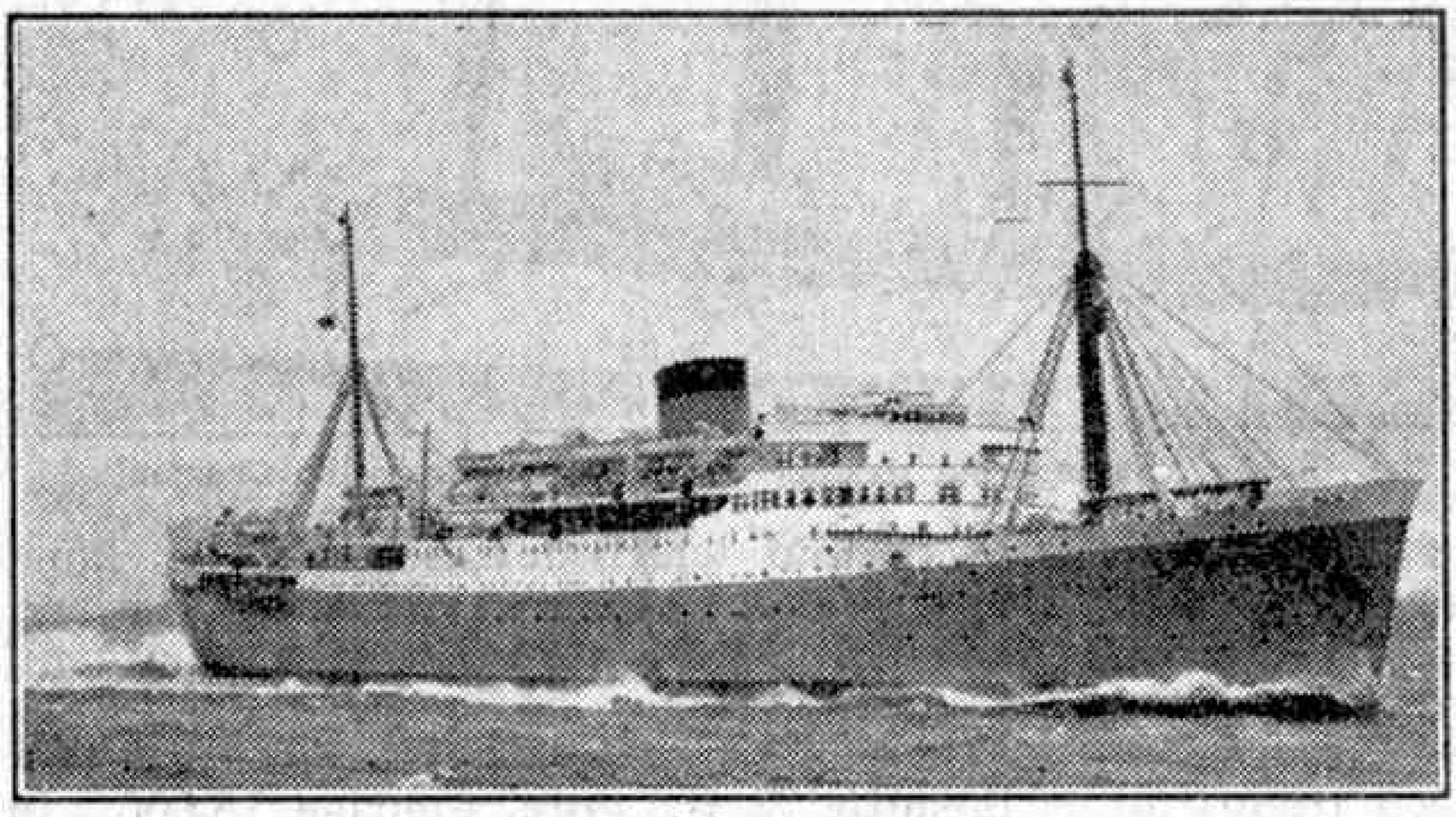
The "Saxon," famous old steamer of the Union Steamship Company.



M.V. "Richmond Castle," a fast fruit carrier.

fore and aft, and orlop deck forward and aft of the boiler spaces, also bridge and poop decks joined, and top gallant forecastle, promenade and boat decks, and navigating bridge. The vessel is subdivided into 12 watertight compartments by 11 watertight bulkheads, while the double bottom extends right through fore and aft. A new feature in Union-Castle liners at the time was the swimming bath.

The steam required for driving the geared turbines was generated at a pressure of 220 lb. per sq. in. in no less than 11 large cylindrical boilers working with natural draught (hence the original four tall funnels) and coal fired. The ship represented, at the time she was built, the high water mark of coal-fired steam-propelled passenger liner practice having no form of mechanical fuel handling. The full story of the conversion of the "*Arundel Castle*" to her present form, as well as that of her sister ship the "*Windsor Castle*" was told in the October "*M.M.*" last year.



M.V. "Durban Castle," one of the intermediate passenger vessels.

The next stage in the history of the company during the 1920s was the ordering of large passenger motor vessels for the mail service and slightly smaller passenger motor vessels for the intermediate service through the Suez Canal, down the East Coast of Africa and back along the West Coast carrying passengers, freight and refrigerated cargo. This latter service started originally from London, calling at Southampton for Cape Colony, Natal, and Delagoa Bay, taking passengers at lower rates than the mail steamships. The ships proceeded alternately via Las Palmas, Grand Canary, and Teneriffe, and called once a month under contract with His Majesty's Government at Ascension and St. Helena. Occasionally a steamer was dispatched carrying passengers at low rates to the South African ports, Lobito Bay and Mauritius.

In 1926 the owners' first motor ship, the "*Carnarvon Castle*," of over 20,000 tons gross, appeared, followed by the M.V. "*Winchester Castle*" of 20,000 tons gross in 1930 and the M.V. "*Warwick Castle*" in 1931. New intermediate motor ships were the "*Llangibby Castle*" (1929) of 12,000 tons gross and "*Dunbar Castle*" (1930) of 10,200 gross tons. These vessels were very successful and increased the value of the fleet enormously; they were all built by Harland and Wolff Ltd.

Another big step forward was taken when the 25,550 gross ton motor vessel "*Stirling Castle*" appeared from the Belfast shipyards and sailed on her maiden voyage from Southampton to South Africa, via Madeira, on 7th February 1936, to be followed by a sister ship, the "*Athlone Castle*," later in the same year. The famous old "*Armadale Castle*" and "*Kenilworth Castle*" were in consequence withdrawn from service, having been in regular operation for over 30 years.

The year 1938 saw the appearance of the "*Capetown Castle*," a beautiful 27,000 gross ton motor passenger liner, which, when she sailed from the Belfast shipyards, marked a very important milestone in the history of the Union-Castle Company. This ship is still the largest vessel to be regularly engaged in the service between England and South Africa; she takes only 14 days on the voyage, and has quite recently resumed her normal sailing after her war service. She left Southampton on Thursday, 9th January, for the Cape via Madeira, and is the first passenger vessel to be returned to the Union-Castle Company's service for commercial purposes after reconditioning. The "*Capetown Castle*" shares prominently in the proud war record of the Union-Castle Line, whose fleet has travelled over 7,000,000 miles on war and Government service. Her proportion of this total was 484,000 miles, during which she carried 164,000 troops and other Government passengers, as well as thousands of tons of valuable cargo, a large proportion of which consisted of lend-lease goods from America and valuable foodstuffs from the Dominions and Colonies.

Although the passenger accommodation, as now reconverted, is similar in character to that of pre-war days, providing for about 250 first-class and about 500 cabin-class passengers, several improvements have been made, such as the provision of a greater number of small tables in the cabin-class dining saloon. An entertainment and broadcasting system by Decca has been installed, while an improved and extended type of public address system has also been fitted for the benefit of passengers. Improvements have also been made in the crew's accommodation by the provision of additional furniture and reading lights over bunks.

It is interesting to note that the Castle at Capetown, after which the vessel is named, was the headquarters of the Cape Fortress Command throughout the second World War. But in the Castle, as in the ship, conditions have now returned to normal. Once again a guide leads visitors round the ramparts and shows them through the Council Chamber which, until recently, was a closely guarded and secret centre of shipping control.

The war service of the "*Carnarvon Castle*" and the "*Winchester Castle*" was dealt with in the May 1946 "*M.M.*" There, also, is recorded the names of some of the principal losses which the Company sustained. The "*Warwick Castle*" was torpedoed and sunk when taking part in the North African landings. The "*Dunvegan Castle*," completed 11 years ago in 1936, was also lost, together with the three "*Dunbar*," "*Llandaff*" and "*Windsor Castles*." Such fine vessels as these are not easily replaced. The Union-Castle fleet, absent from its customary routes throughout the war, rendered splendid service to the Allied cause in all quarters of the globe, as armed merchant cruisers, aircraft carrier, troopships, hospital ship and carriers of war material of all kinds for the Armed Forces, in addition to the conveyance of refrigerated and general cargoes to maintain home supplies.

It would be a grave error to complete this article without making reference to another very important part of the Union-Castle fleet—it is proposed therefore to deal briefly with the fruit ships. All the big mail and intermediate ships are specially fitted with insulated cargo spaces for the carriage of fruit, but the "R" boats, as the smaller fruiters are known, are specially designed for the sole purpose of carrying South African fruit to the British market. It is generally agreed that these "R" boats include some

of the most interesting technical developments which have been carried out under the British flag. All these ships also were built by Harland and Wolff Ltd., at Belfast.

A typical example of these "R" ships is to be seen on Page 187, it is the "*Richmond Castle*," built in 1939. This vessel had a gross tonnage of 7,798 and a net tonnage of 4,728, her deadweight capacity being 9,191. More than 403,000 cu. ft. of her hold space was arranged specially for the carriage of fruit, both deciduous and citrus, while certain compartments could be adapted for chilled meat and dairy produce. All the holds and 'tween decks, including the bridge deck, were insulated, the compartments adapted for meat being No. 4 'tween deck and three compartments in the bridge 'tween deck. The rapid handling of cargo is a most important feature of the fruit trade and in this respect the "*Richmond Castle*" was very well catered for, as she had two derricks and two electric winches at each of her five hatches. The main propelling machinery consisted of a double acting two cycle diesel engine of the well-known Harland-B. & W. design, giving the ship a speed of 16½ knots. It is safe to say that in producing a type of vessel which is capable of fostering the rapidly developing South African fruit export trade to this country the builders have, with the "R" type, turned out a 100 per cent. fruit ship.

The two latest additions to the "R" ships of the Union-Castle fleet sailed from the Belfast shipyards last year. These ships, the "*Riebeeck Castle*" and the "*Rustenburg Castle*," are each of 8,322 tons gross and are the "last word" in this type of ship. They sail from Southampton to Capetown, Port Elizabeth, East London and Durban. The name of the latter vessel is derived from the pleasant little South African town of Rustenburg in the Transvaal, which is the centre of a famous citrus fruit, tobacco and cotton growing district.

It has been mentioned already that as the passenger vessels are released from Government service they are being reconditioned, but it is an enormous programme, and pending the return to service of all the passenger vessels, the company are arranging to supplement these by the fast "R" type cargo vessels, and as far as possible a weekly mail sailing between Southampton and Capetown in each direction has been reinaugurated this year.

The "*Athlone Castle*" is expected to be completed this year. The "*Stirling Castle*" was released from trooping, and arrived in Belfast, in January, to be followed at three-monthly intervals by the "*Winchester Castle*" and "*Carnarvon Castle*" and subsequently by the "*Arundel Castle*." The two huge new mail vessels "*Pretoria Castle*" and "*Edinburgh Castle*," now building at Belfast, are expected to be delivered in December 1947 and March 1948 respectively. Together they will cost about £5,000,000.

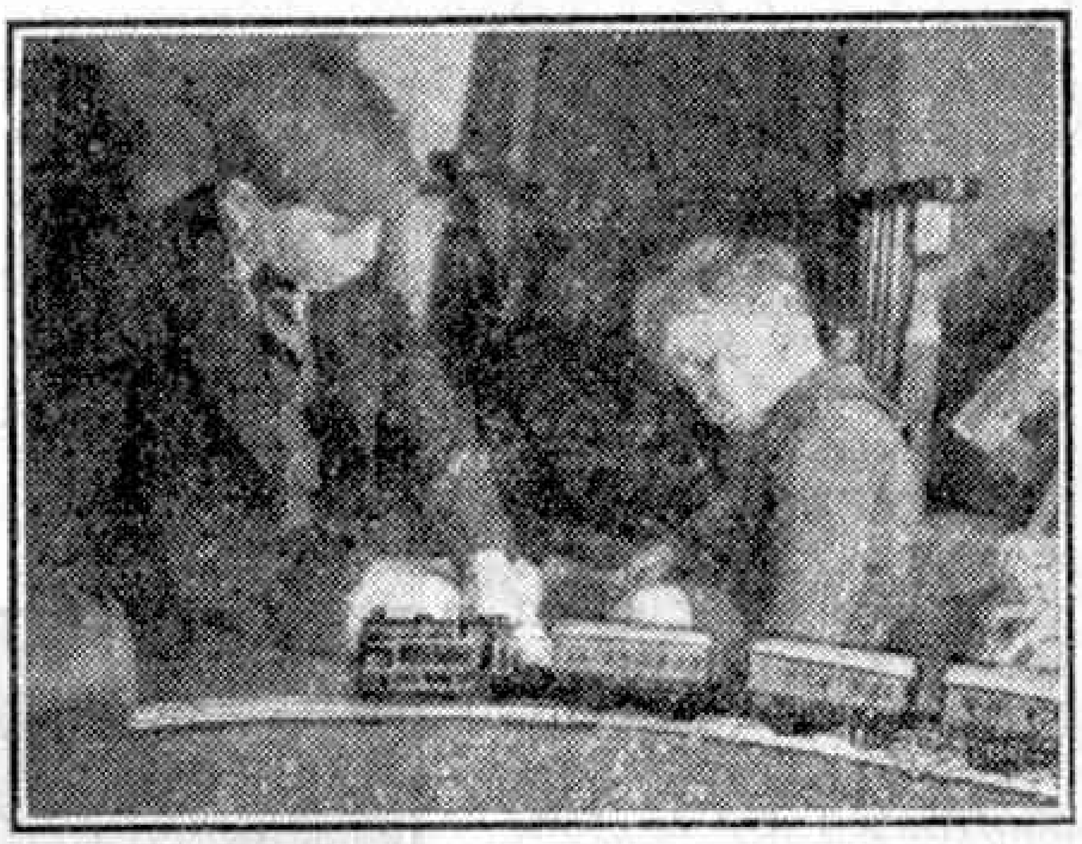
The company's intermediate motor-vessels "*Warwick Castle*" (this was formerly "*Pretoria Castle*" and was converted into an aircraft carrier) of 17,000 tons gross, left Belfast after reconditioning on the 3rd March. The similar ship "*Durban Castle*" will probably be completed in July. These two ships will be employed temporarily in the mail service.

By early 1948 it is hoped that the South African mail and passenger service will be fully reinstated. It is intended to recommence the former "Round Africa" passenger service as soon as the reconditioning of the "*Llandovery Castle*" and "*Llanstephan Castle*" is completed in the second quarter of this year. The "*Llangibby Castle*" is expected to return to service after reconditioning about the middle of 1947. The Union-Castle Mail Steamship Company's fleet now consists of 23 vessels of 297,000 tons gross register, as compared with 30 vessels of 383,000 tons gross register in September 1939.

For centuries in maritime commerce, the ocean trade route via the Cape of Good Hope has been important, but the numbers of ships using the route during the peak period 1940 to 1943 far exceeded anything known in its previous history.

A Model Railway Story

By John O'Hanlon



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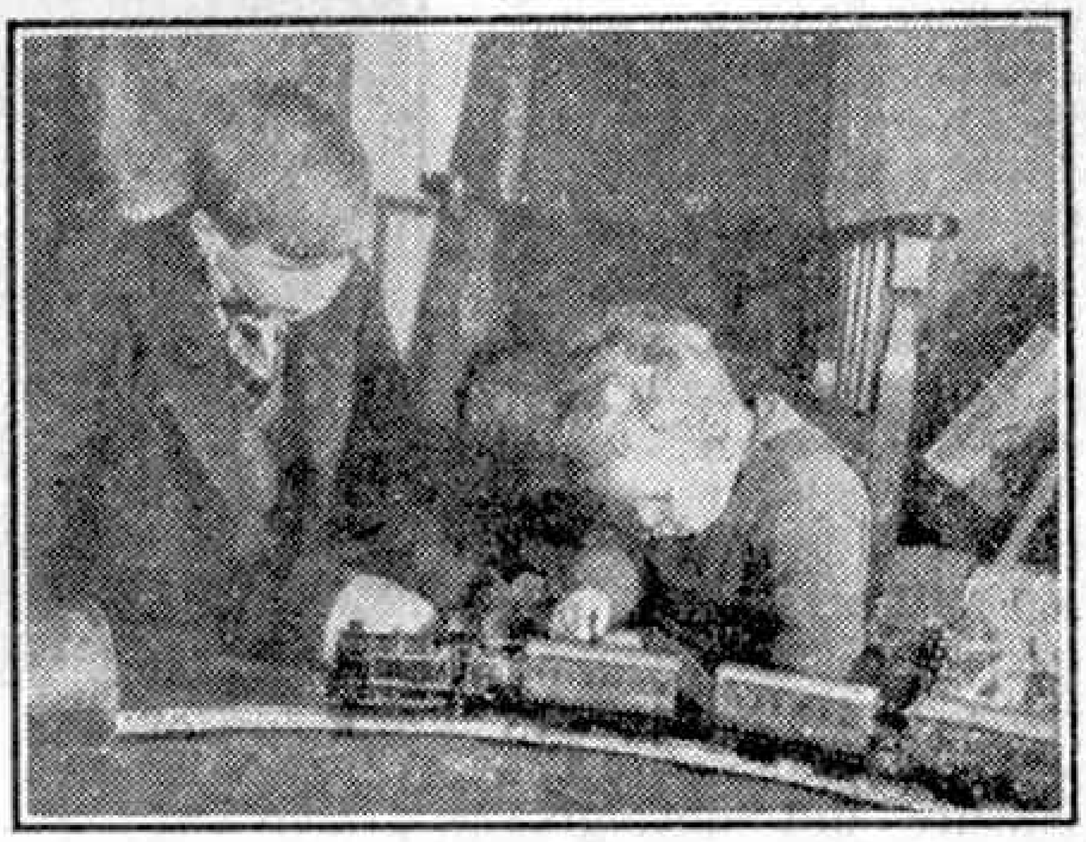
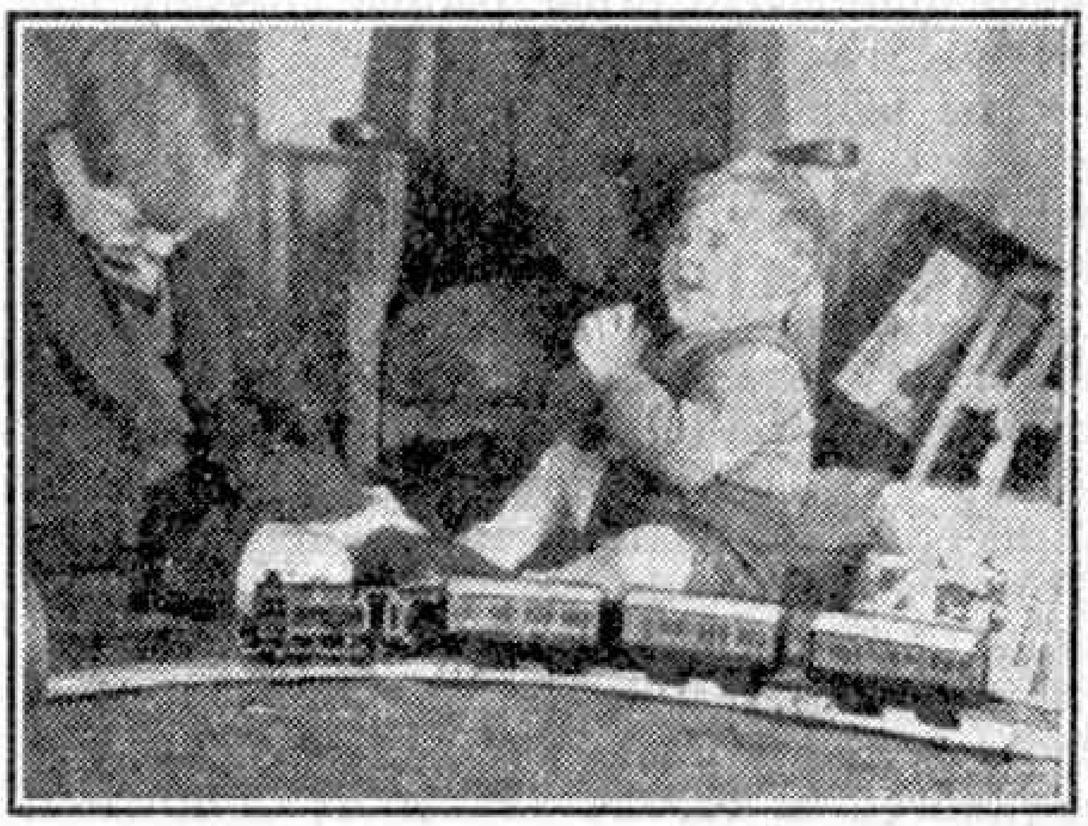


Hmm!



"There you are, we're off!"

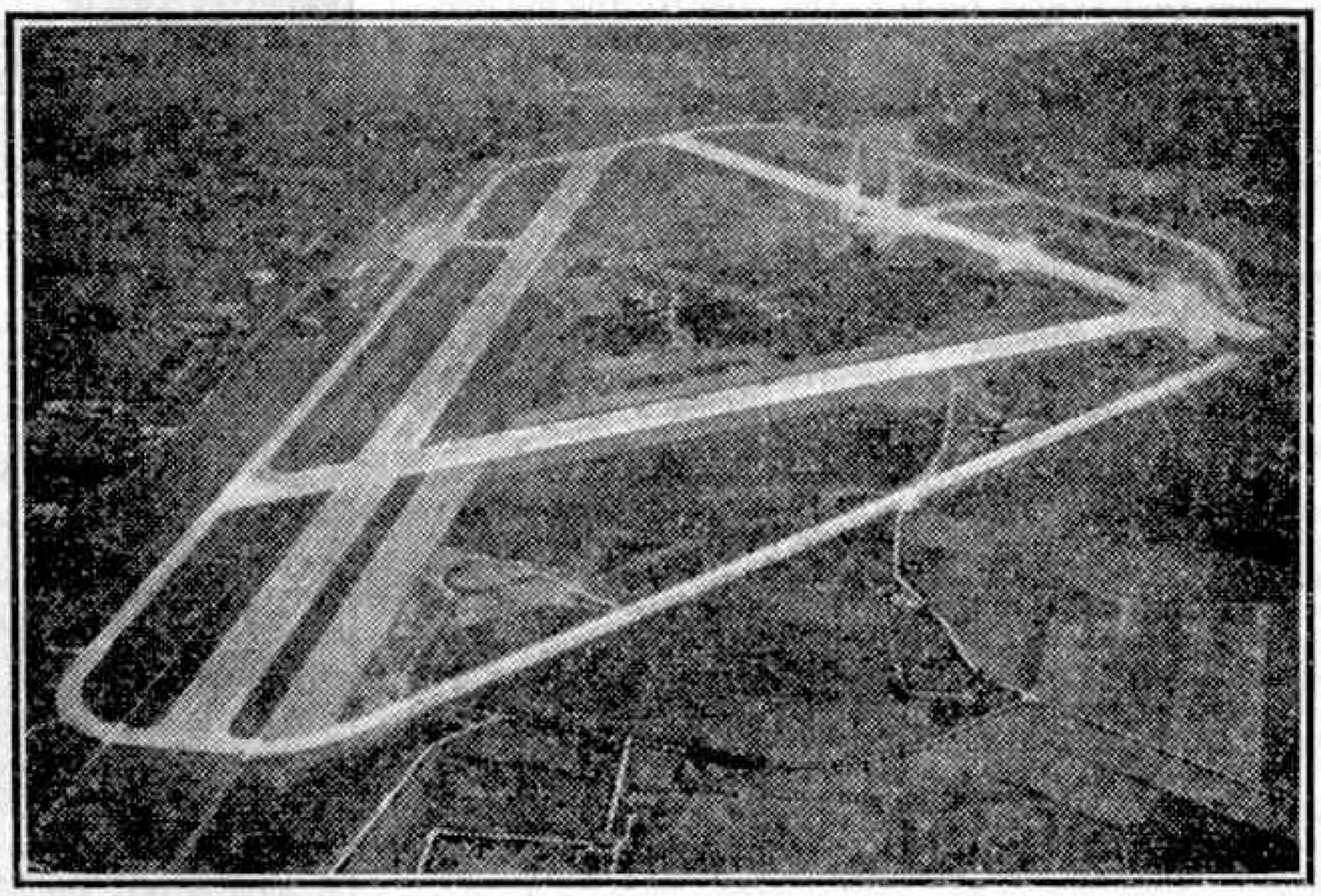
Safety in the Air

By John W. R. Taylor

"NOBODY but a fool could foresee any future for these unreliable, spluttering horseless carriages now infesting some of our roads." Yes, it sounds funny to-day, but only some fifty years ago that statement probably summed up the thoughts of most members of the British public, for motor cars were then new and very hazardous machines. Seventy years before that people were saying the same sort of thing about railway trains, predicting that those foolish enough to entrust their lives to these fire-eating monsters would be killed by their great speed of 29 m.p.h. Progress in any sphere of life has always been confronted by a stone wall of tradition, scepticism and opposition, and aviation in its short life has probably suffered worse than most. So, even to-day, when an air liner crashes you hear remarks from all quarters that "Flying is not safe," that "You wouldn't get me off the ground," or even that "If nature had intended men to fly it would have given them wings." Nature did not give us sails or webbed feet but that did not stop Columbus or Drake, and it does not stop millions of other people crossing the Seven Seas every year.

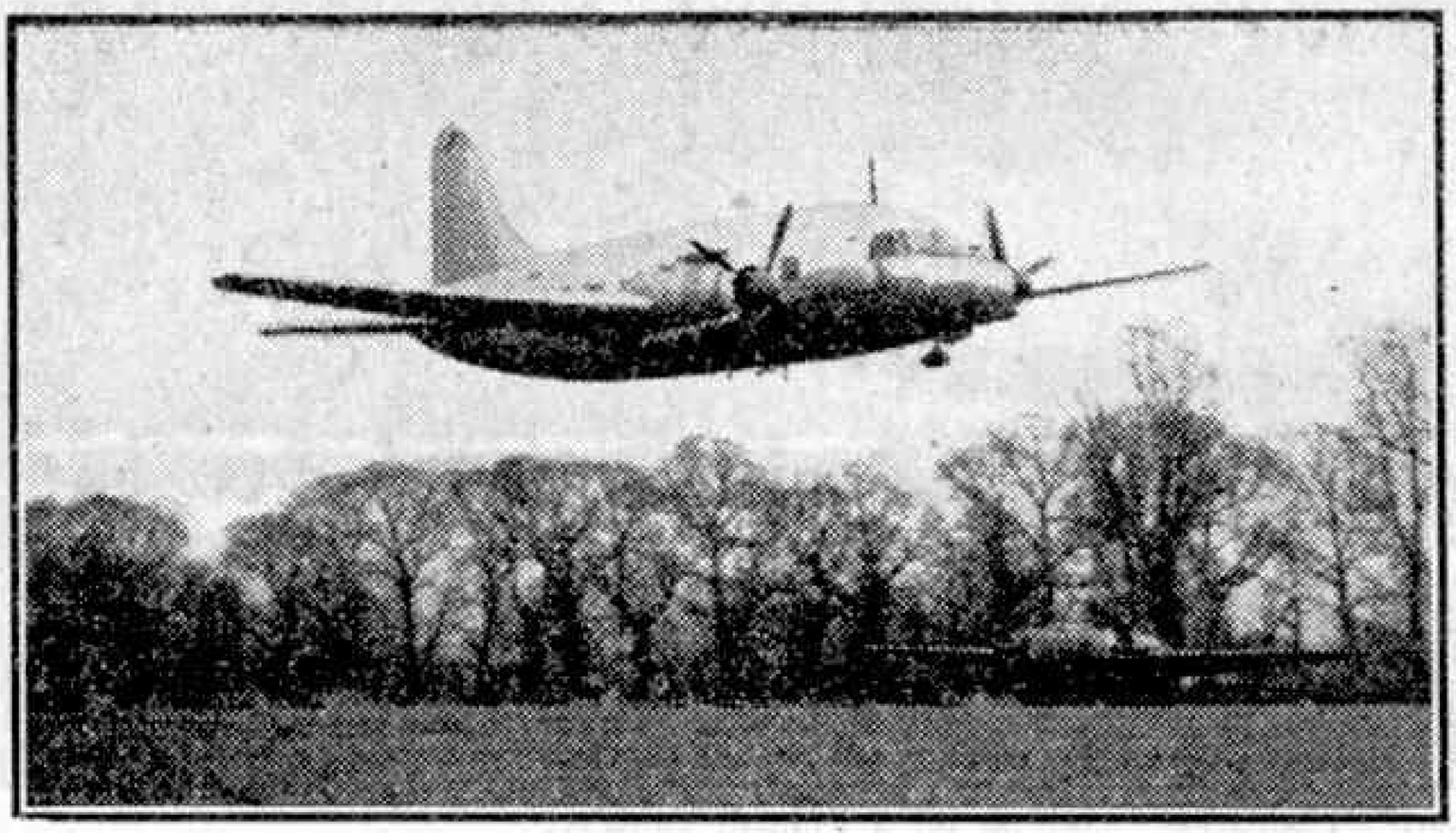
The fact is that, safe or not, flying has come to stay. One of its worst enemies at the moment is the daily press, for every time an air liner crashes it is headline news for days. This is understandable, for many newspapers thrive on sensation; it is their life-blood and the public laps it up. It is not news that 200 aircraft take off and land safely on London's three airports almost every day of the year, but it is news when one of them finishes up on the top of a house. It is not even headline news that No. 511 Squadron of R.A.F. Transport Command, equipped with only 20 "Dakotas," flew over 61,200,000 passenger-miles during 1945 without a single fatal accident, but it is a fact! It is also a fact that two "Empire" flying boats have crossed the dangerous 1,300-mile strip of water between Australia and New Zealand several times a week for the last seven years without mishap. These are but two examples of the splendid service being done by British and American transport aircraft all over the world to-day.

Before the public can say that flying is not safe it must have facts. After all, there are plenty of posters telling us that "Four children are killed on the roads every day," but that does not stop parents sending their children to school.



This aerial view of Heath Row airport shows the vast runways necessitated by the high take-off and landing speeds of modern air liners.

To be quite honest, flying will never be safe if by "safe" one means free from all possibility of accident. But then neither will walking. On the other hand it is much more safe than it used to be and will be even safer in the near future as all the countries of the world get together to make it so. Already a start has been made, and the Provisional International Civil Aviation Organization (PICAO) has been formed to iron out all problems hampering international co-operation on civil aviation matters, and to standardise equipment as far as possible. In addition, the major airline operators have got together on their own initiative and have formed the International Air Transport

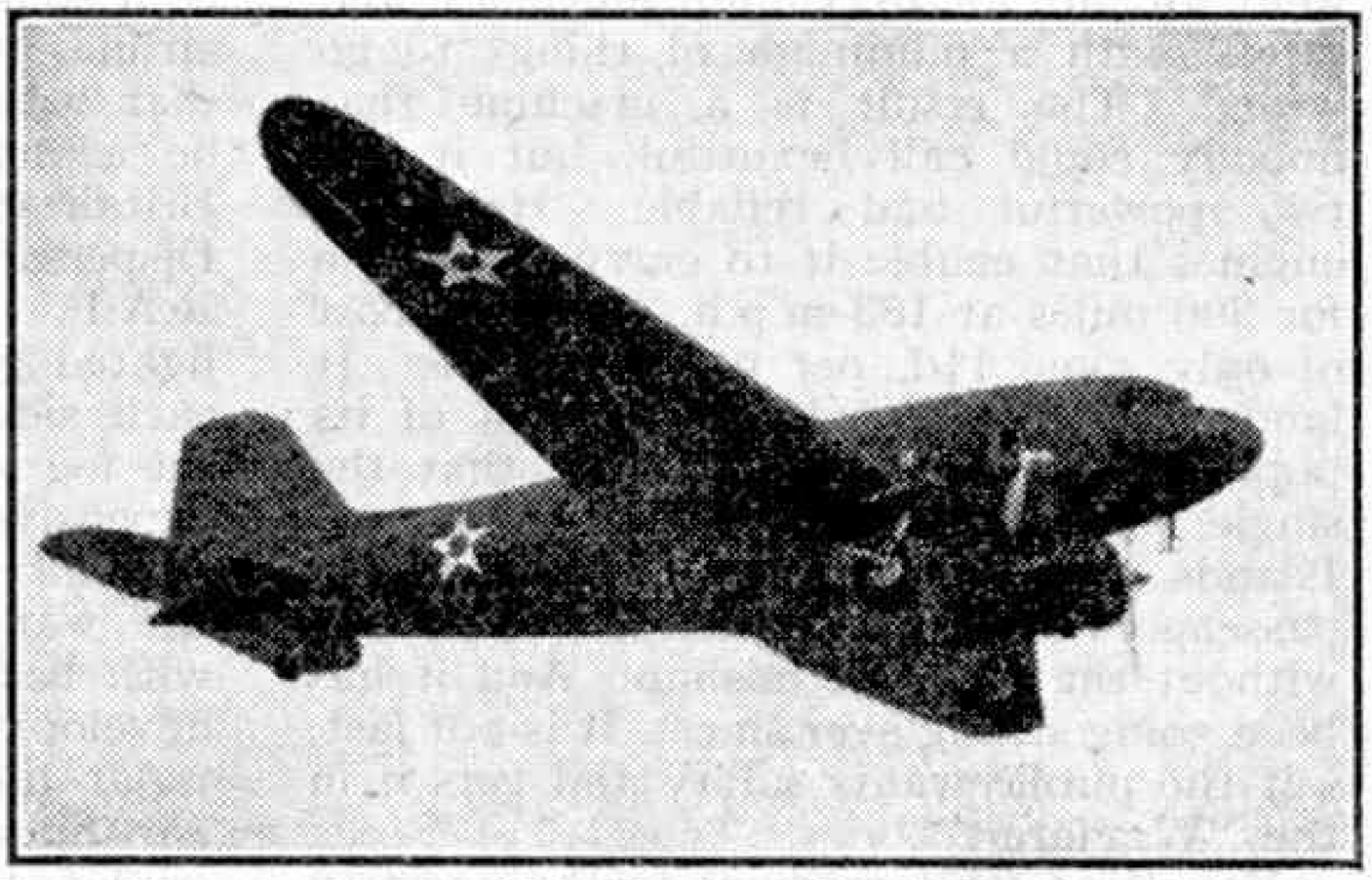


"Viking" transport demonstrating its ability to climb safely on one engine in the event of the other failing during take-off. Photograph by courtesy of Vickers-Armstrongs Ltd.

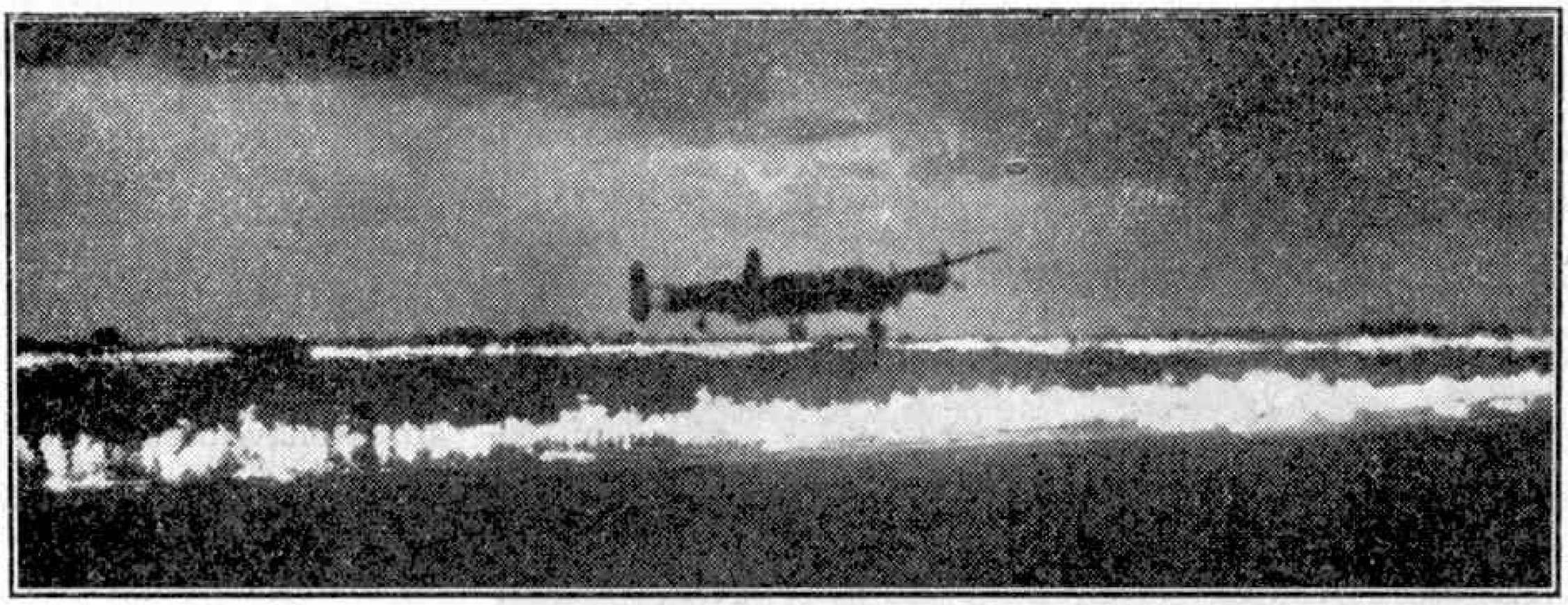
Association (IATA). Already excellent progress has been made on such matters as standardising universal radio aids—an important point as difficulty has often been experienced by radio operators aboard air liners coming in to land at an airport equipped with radio sets of a different frequency, so preventing proper communication.

Before going any further, there is one myth that must be exploded. Much mud has been thrown at the "Dakota" in recent months as air liners of this type have been involved in a number of accidents. The reason is obvious to anybody who has visited an airfield such as Northolt, Blackbushe or Croydon, where any day ten to a dozen "Dakotas" take off and land for every air liner of any other type. During the war thousands of the "Dak's" military counterparts carried out specialised and dangerous missions on every battle-front. No one who saw the sky dark with these aircraft heading for the Normandy beaches on D-Day, towing gliders to Arnhem and then flying through a solid curtain of *flak* to supply the Airborne troops fighting on the ground, could do anything but admire these sturdy aircraft. Now that they are in service in very large numbers with almost all the world's airlines, prospective travellers can be heartened by the fact that the "Dakota's" accident rate with the Royal Air Force is lower than that for the "Anson," "Lancaster," "Spitfire" or almost any of the well-known Service types. It is, in fact, as good as that of the much newer and four-engined "York." So there is little reason for criticising the "Dakota," particularly as, in almost every case, accidents involving this aircraft have been proved due to error or lack of foresight on the part of the pilot or ground organisation.

By far the greater proportion of flying accidents occur within a mile or two of airports, usually during take-off or landing. Excluding human errors, the chief causes are fog, engine failure at take-off, and rare instances of brake failure, tyre burst and so on. Failure of an engine during take-off in the case of a twin-engined machine is serious, especially if it is heavily loaded, but it is not necessarily fatal. In fact British air liners such as the "Viking" have to prove themselves capable of climbing away with full load on one engine after a failure at take-off before they are certified as safe for airline work. Nevertheless it is a little frightening to realise that, for those few minutes, the lives of perhaps dozens of passengers sometimes depend on the continued smooth running of two man-made machines racing away as fast as they can go. The fact that accidents are so very rare is a tribute to the fine work of the engine



The military counterpart of the Douglas "Dakota" transport in service on almost all the world's airlines. Photograph by courtesy of Douglas Aircraft Company, Inc., U.S.A.



An Avro "Lancaster" landing on a Fido-lit runway.

manufacturers.

The best answer to this problem rests with the designers. There is often far too much emphasis on high speed and not enough on slow landing speeds and short take-off and landing runs. It is little use having the world's finest, most comfortable air liners if they need two or three miles of concrete runway to career along before becoming airborne; there would be few airports in the world big enough to accommodate them—a fact that nearly put paid to the chances of the new "Tudor" II. The vast expanses of concrete at Heath Row, Idlewild or any other modern airport are monuments to the designers' inability to produce air liners with really safe landing speeds.

The fault does not always rest with the designers, however, for if their products were not fast or super-streamlined they might easily lose a contract. That did not worry Mr. A. E. Russell of Bristols when he designed the "Wayfarer," as he went all out for maximum efficiency and safety with a minimum of things to go wrong. The result is a machine that nobody could call beautiful, but it has two powerful and reliable "Hercules" engines that enable it to carry 34 people for 300 miles at 163 m.p.h., and at a cost of only some 1¼d. per passenger-mile. It lands in only 600 yds., and proof of its popularity is given by the fact that the single "Wayfarer" operated by Channel Islands Airways carried more than 10,000 passengers in its first four months of service, without the slightest mishap. And it has been going strong ever since. It is not fast, but the public wants safety and gets it in the "Wayfarer."

Reverting for a moment to the question of engines; before the war many leading British engine designers, Sir Roy Fedden in particular, believed that the solution to many problems lay in the Diesel engine, which they claimed was simple and reliable as well as providing less danger of serious fire in the event of a crash. Unfortunately Diesels were never given a chance, but there is little doubt that the eventual use of jet engines will help to lessen the danger of engine failure. They are simple, with few moving parts to go wrong. In addition, they require no period of warming-up and, when in general use on civil air liners, should prove highly satisfactory and reliable. But, for the moment, the best way of avoiding trouble with ordinary petrol engines seems to be to keep down the loaded weight of air liners so that each engine has a little power in hand during the few critical minutes at take-off. For landing, use of the new reversible-pitch propellers will reduce landing runs and so help to eliminate the risk of over-shooting the runway.

Bad weather, especially fog, will always be a source of trial and tribulation to the airline pilot, but there is every chance that within a short time it may cease to be a material danger. During the war Britain developed F.I.D.O. (Fog Intensive Dispersal Of) Installations for use at some R.A.F. airfields. Under this scheme lighted petrol is sprayed from pipes along each side of the runway and this clears the fog locally for landing. But it is very expensive, and the real answer to fog is "blind" landing by radio. Long before the war great progress had been made with beam approach systems, and recent developments in the use of radio and radar hold great promise for the future. Air liners can be located precisely and guided to their destination by operators on the ground just as, during the war, British bombers were (*Continued on page 220*)

BOOKS TO READ

Here we review books of interest and of use to readers of the "M.M." With the exception of those issued by the Scientific and Children's Book Clubs, which are available only to members, and certain others that will be indicated, these should be ordered through a bookseller.

"FURNESS RAILWAY. ITS RISE AND DEVELOPMENT"

By W. McGowan Gradon, B.A.

The centenary of the first section of the Furness Railway fell last year and Mr. W. McGowan Gradon, B.A. has marked the occasion by this interesting and comprehensive account of the fortunes of the line up to the time of its inclusion in the L.M.S. group. Although primarily a mineral-carrying system, the Furness eventually became notable for its encouragement of Lake District tourist traffic, and for its part in the industrial development of the port of Barrow.

Details are given of the promotion and opening of various sections ultimately incorporated in the main company, and particular attention is given to the development of Barrow Docks, to the working of the train services, and to traffic facilities generally. Chapters on the locomotives are interposed with descriptions and details of the engines themselves and notes on duties and running arrangements. The book concludes with chapters on joint lines in which the Furness Railway was interested and a brief review of latter-day events.

Numerous illustrations, maps, plans and gradient profiles complete an admirable record, copies of which can be obtained from the author at 333, Corn Exchange, Manchester 4, 15/6 post free.

"PICTORIAL SOCCER"

(O. H. Bateman & Co. Ltd. 1/-)

Here is a very interesting booklet that will appeal to all who play Association football, and indeed to those who have to be content with watching, for it will help them to understand the niceties of the game. In compiling it the publishers have been fortunate to have the advice and criticism of Mr. D. E. A. Pettit, the amateur international and Corinthian Captain, and Joe Mercer, the international half-back, formerly of Everton and now of Arsenal.

The booklet deals with the fundamentals of the game, beginning with the general kick, and passing on to special kicks, trapping, dribbling, passing and tackling, with details of goalkeeping completing a very adequate survey. Explanations are direct and simple. Good reasons are given for the methods advised, and these are made clear by illustrations by Owen, which show graphically in admirable fashion the right way to perform every action.

The booklet is a splendid shillingsworth and should have a good influence on the play of all who read and study it.

1. "THE EARLY HISTORY OF THE RAILWAY LOCOMOTIVE 1804-1879"

(5/8 post free)

2. "THE DEVELOPMENT OF THE RAILWAY LOCOMOTIVE 1880-1946"

(6/2 post free)

(Oakwood Press, Chislehurst)

These two booklets together cover the whole period of the development of the locomotive from the early and largely experimental engines of Trevithick, Stephenson and others to the most recent developments. The account passes in review such noted products as the "Little Sharps," the "Small Hawthorns," the "Jenny Linds" and other early standard types, and also the more individually characteristic engines of the middle period of railway development by which time such establishments as Crewe, Doncaster, Derby and others had instituted standards of design and outline. The tale is carried on through the compounding epidemic of the middle 'eighties to the tall yet still slim engines of the late 'nineties. Then come the important steps forward taken in the earlier years of this century, and so by degrees we pass from the "Atlantic" to the "Garratt" era. Final chapters deal with electric, petrol and oil-engined units, and various designs of modern steam locomotives.

Throughout the text is plentifully illustrated by effective sketches and reproductions from photographs. Wherever possible relevant dimensions are incorporated in the text and although one may not always agree with everything that the author writes, he has made a good job of a lengthy and involved subject that will be read with interest.

Copies of the booklets are obtainable from the Oakwood Press, 30, White Horse Hill, Chislehurst, Kent, at the prices quoted above.

"'WELLCOME' PHOTOGRAPHIC YEAR BOOK"

(Burroughs Wellcome. 3/5½)

The Wellcome photographic record and diary was the first of the pocket size manuals to be published for the benefit of photographers. It set a high standard from its beginning, and it has been made continually more valuable to photographers with each year's issue. With the present edition it assumes a new name, but there is no change in its purpose, and it continues to provide a comprehensive and practical reference manual of formulæ and methods for both beginners and advanced photographers.

In the general section emphasis is laid on the need for correct exposure, the outstanding essential to success, and directions are given for the use of the Wellcome exposure calculator, a simple instrument included at the back of the book. This is used in conjunction with monthly light tables, provided in convenient form in the previous pages, and with standard types of subjects, examples of which are given in a series of reproductions of excellent photographs. With very little practice the beginner can make good use of the calculator and so avoid wasting precious films.

More detailed information on exposure follows, with interesting advice on indoor photography, copying and enlarging, cinematograph and the effect of colour filters on exposure. Developing and other processes are dealt with in detail and there are useful tables of information on films and plates, lenses and filters.

"MY BEST RAILWAY PHOTOGRAPHS" No. 4 L.N.E.R.

By C. C. B. Herbert

(Ian Allan Ltd. 1/6)

This, the fourth book in the series, shows a selection of photographs of L.N.E.R. subjects representing the work of Mr. C. C. B. Herbert, who is a member of the L.N.E.R. staff. Nearly all his photographs of express trains have been taken on the spur of the moment rather than having been carefully planned. The results are striking, as a study of the book soon shows, and there are intimate angles in many instances that are the direct result of his being "on the line."

Many kinds of L.N.E.R. trains are included in the views, and locomotive enthusiasts will be delighted with the reproductions of a wide range of engines in the pictures, from haughty "Pacifics" to the more ordinary but hard-working freighters. One or two views "on the shed" are included.

Copies can be obtained from A.B.C. Locomotive Books, Mail Order Department, 33, Knollys Road, Streatham, London S.W.16, price 1/8½ post free.

Watching Water Beetles

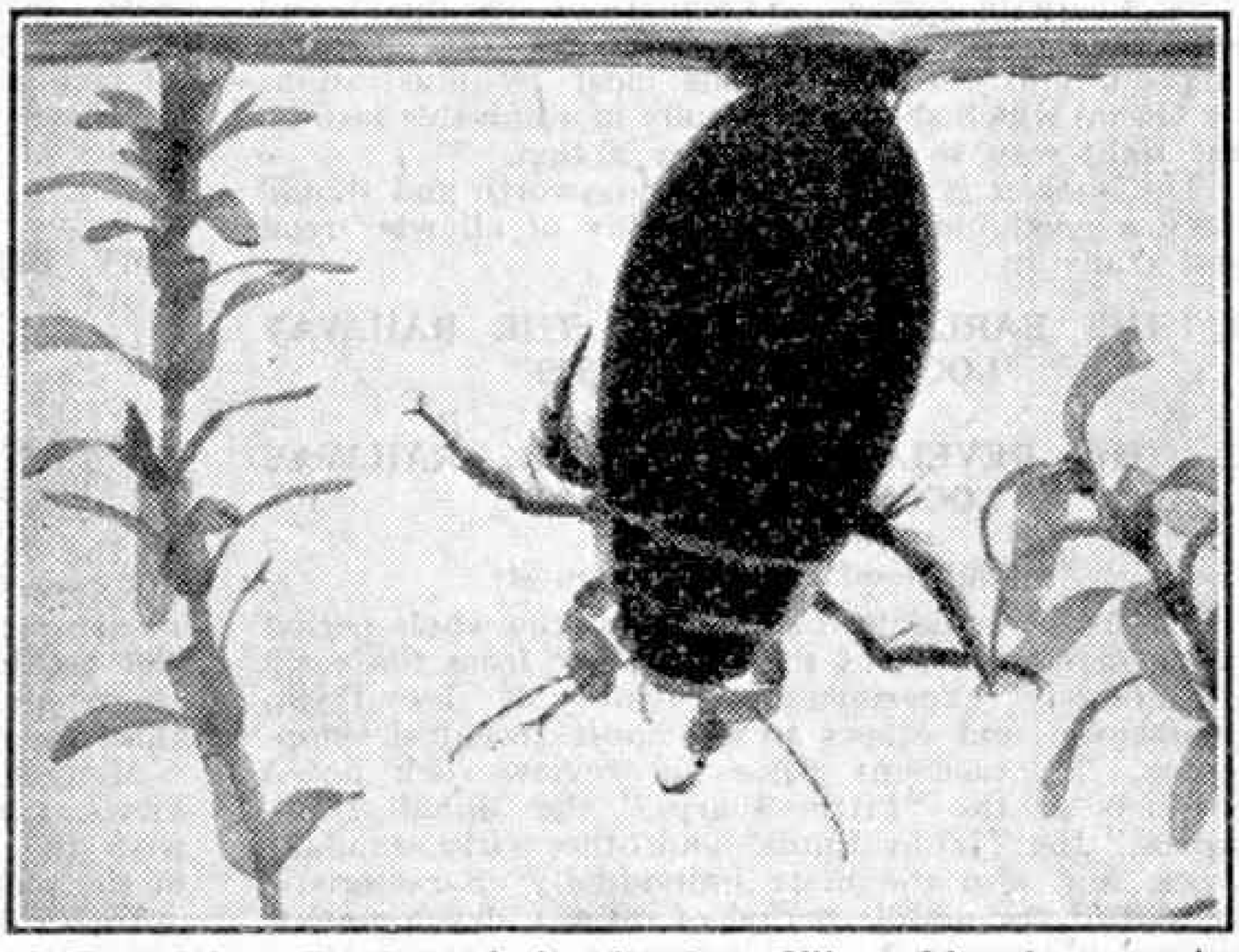
By L. Hugh Newman, F.R.E.S.

WHAT lies beneath the surface of a pond is usually hidden from your gaze, but if you're walking by the water on a warm summer's day you can't help noticing the shining black Whirligig beetles in their hundreds basking in the sunshine. If left undisturbed they just laze around like a good-natured holiday crowd; but toss a small stone among them and they at once begin to skim about the surface at amazing speeds, often turning in their tracks in bewildering fashion. You may wonder how they manage to live in such crowded conditions. Visit the pond again at dusk, when the after-glow of the setting sun is reflected on the water. You will then see them busy hunting for food near the margins, searching the surface systematically beneath the overhanging sedges and pouncing on the tiny Springtails congregated there.

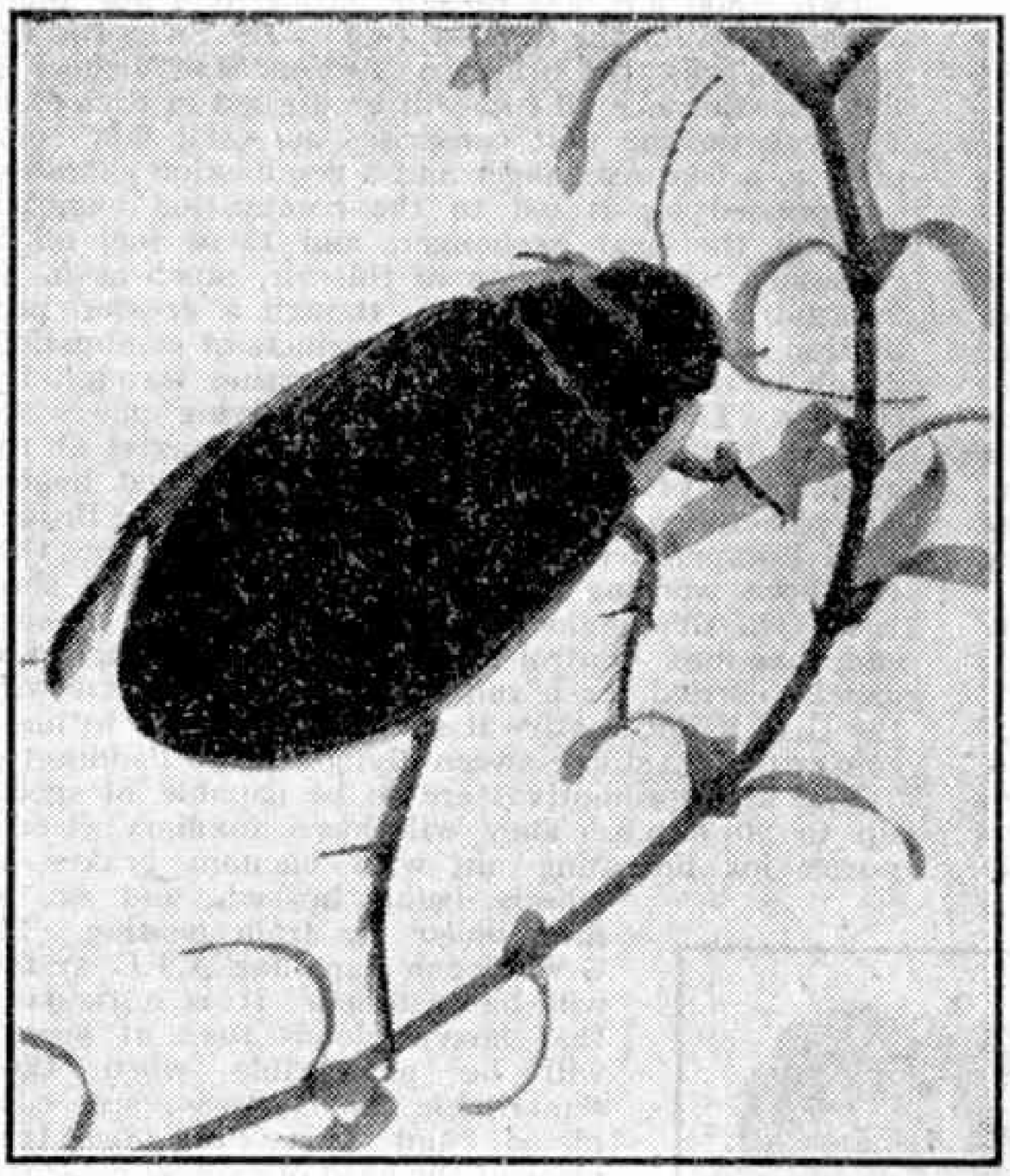
Now many of the other numerous aquatic beetles are not so easy to observe in their natural haunts. A few may be caught by hauling out the floating clumps of water plants, but to be really successful in capturing them you should use a fine-meshed long-handled net. The largest beetle you are most likely to catch in this way is the Great Water Beetle. It is about the size of the top of one's thumb, dark greenish above, and yellowish beneath, and it is extremely fierce. It will tackle and kill water creatures much larger than itself, such as newts, water snails, large worms and even certain fish. I have actually watched a Great Water Beetle attack quite a large fish, cling on to it and "ride" it as a stoat will a rabbit, tearing into its vitals with its strong jaws until the victim succumbed and sank to the bottom of the pond. If several of them are kept together in an aquarium and are neglected and underfed, the rather larger females will set upon the males and eat them!

I remember another instance in which the tables were turned and the ruthless attacker was attacked, but rather to my disappointment an underwater battle never materialised. I was lying beside a pond one day, watching a host of water flies and other fascinating aquatic creatures congregated there, when a Great Water Beetle rose to the surface to renew its supply of air. Almost immediately an Edible Frog made a leap towards it. The Beetle however was much too quick for it and dived into the depths again. I was not surprised that the frog missed its aim, as I've learnt from experience that to catch a Great Water Beetle in open water you must dip quickly with your net just *before* it surfaces, in fact while it's on the upward surge; otherwise you don't stand a chance.

The Great Water Beetle lays her eggs in the spring in the submerged leaves and stems of water plants, but it is extremely difficult to find them. The way I always obtain eggs is to catch a few beetles in the autumn and confine them in an unbreakable container, preferably a stone jar about 18 in. to 2 ft. long, and sink it in the garden to the rim. A small screened overflow near the top prevents the tank overfilling and of course also makes certain that the beetles can't get away. A close fitting cover with a perforated zinc "window" in the centre gives the necessary light and ventilation, and keeps out unwanted creatures. You can feed the beetles on earthworms or pond snails. About the beginning of March introduce into the tank a number of stems of the Reed Poa, with new and old



A Great Water Beetle surfacing for the refilling of its air reservoir. The illustrations to this article are from photographs, enlarged to about three times natural size, by D. A. Ashwell.



A female Great Water Beetle resting under water. As it is lighter than water it can only remain under the surface by clinging to pondweed or some other support.

foliage attached, and as they float about on the surface they form ideal egg-laying "rafts."

Somehow or other the female Great Water Beetle lays her eggs within the thickness of the leaves, a rather remarkable feat as they are no thicker than a piece of brown packing paper. The eggs are sausage-shaped and about a quarter of an inch long, but the larvæ that hatch from them are much larger than you would expect. The young larvæ begin feeding almost at once, seizing any small creatures that are unfortunate enough to come within reach of their strong curved jaws. They are particularly fond of the free-swimming Mayfly larvæ which inhabit most ponds and lakes. They grow rapidly, casting their skins several times before they become full grown. They never pupate under water, but crawl up the bank and dig themselves a small hole in the mud, where they cast their larval skin for the last time and then turn into pupæ in the safety of their final retreat.

There is an even larger all-black Water Beetle that feeds only upon water plants, especially the stoneworts. It is a much nicer creature to keep in an aquarium owing to its gentler habits, its silvery appearance when under water, and the fact that it can be watched making its egg cocoon among the plants floating on the surface. It is called appropriately the Great Silver Water Beetle and is rather rare and local. But when you do chance upon a colony of them, as I did once, you'll find they are usually more common than their near relations the Great Water Beetles. There is one tiny species of which I am very fond. It is black and about the size of a Whirligig, but slow in its movements, crawling upside down on the underside of the surface film of the water. The air imprisoned between its legs makes it appear as though dotted with silver, hence its common name, the Least Silver Water Beetle. This little creature is a vegetarian and the best places to look for it are the grassy margins of shallow ponds.

When hunting in some marshland country recently I came across a number of the slender-legged Chirping Beetles. They make an astonishing noise when taken out of the water, and for this reason they are sometimes called "Screech" or "Squeak" Beetles. A good imitation of the sound they make can be made by twisting a cork in a bottle!

There are a great many species of water beetles, some no bigger than a large pinhead; others that I have described already run to the size of a cob nut. There is still quite a lot to be learned about their under-water life histories, and the only way to study them at close quarters is to set up a good aquarium. We know that all of them lay eggs, which in turn hatch into larvæ. All have to pass through a resting, or pupal, stage before emerging as perfect beetles. We know also that however much an adult beetle eats it never grows any larger when it has once broken out of its pupal shell. All the growing takes place while it is in the larval state. Some of these larvæ are free-swimming, active creatures, seizing and preying upon anything with which they can cope. Others crawl about the muddy bottom of ponds, or among the water plants, relentlessly searching out and devouring defenceless small creatures which can't get away quick enough.

As water beetles breathe atmospheric air, you may have wondered sometimes how they obtain this during the winter when ponds are frozen. Well, in most natural ponds which are not spring fed there is usually a steady drop in the water by seepage and soakage which you can discover for yourself if you bore a hole through the ice. (*Continued on page 220*)

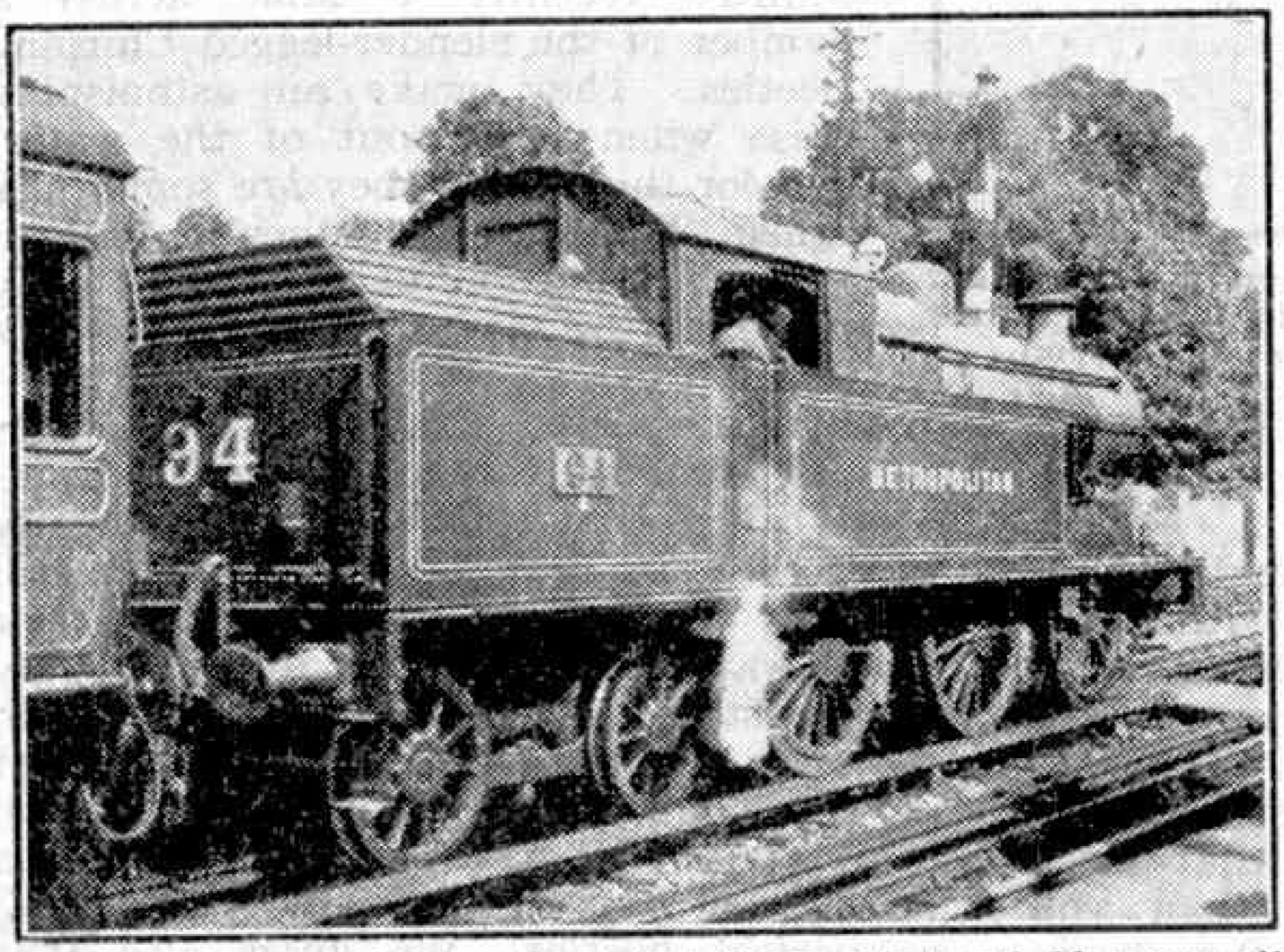
Railway Notes

By R. A. H. Weight

News from The Great Western

A new series of 0–6–0 tank locomotives is under construction at Swindon as lot 365. Nos. 9400–1 were placed in service during February and others are following. No. 9400 is shedded at Swindon and No. 9401 at Paddington. The boiler is the same as on the "2251" 0–6–0 tender engines, the driving wheels are 4 ft. 7½ in., and there are inside cylinders of 17½ in. diameter and 24 in. stroke. A reader writes that they have side, rather than pannier, tanks and that they also boast a copper cap to the chimney.

New "County" class 4–6–0 locomotives recently placed in service are numbered, named and shedded as follows: No. 1023, "*County of Oxford;*" No. 1024, "*County of Pembroke;*" No. 1025, "*County of Radnor;*" No. 1026, "*County of Salop.*" Allocations are No. 1023, Laira; Nos. 1024–5, Stafford Road, Wolverhampton; No. 1026, Paddington. No. 1027 "*County of Stafford*" and No. 1028 "*County of Warwick*" also are built.



London Transport (Metropolitan) 0-6-4T No. 94 "Lord Aberconway" at Rickmansworth. Photograph by C. R. L. Coles.

Additional "Castles" fitted for oil-burning include No. 100 A1 "*Lloyds*" and No. 5079, "*Lysander.*" More nameplates have been affixed to "Halls" Nos. 6935–6, 6944, 6956, 6963, and 6968, named respectively "*Browsholme Hall,*" "*Breccles Hall,*" "*Fledborough Hall,*" "*Mottram Hall,*" "*Throwley Hall*" and "*Woodcock Hall.*" No. 1013 is now "*County of Dorset.*"

Three of the 31xx 2–6–2T class numbered 3152, 3162 and 3166 have been withdrawn. This series was introduced in 1907 for heavy mixed traffic or suburban passenger work, with a boiler pressure of 200 lb. per sq. in. They were regarded as decidedly big engines of their type during their early years. The boiler is larger than in the 51xx or 61xx classes.

The 4–6–0 "Grange" class which we illustrate this month now includes 80 engines numbered 6800–6879. They are a smaller driving wheeled version of the "Halls" as built up to No. 6958, having 5 ft. 8 in. driving wheels compared with the 6 ft. of the "Halls," and were first introduced in 1936 for secondary main line passenger as well as fast goods work. At busy times or in emergency it is by no means unusual to see representatives of the class hauling express passenger trains.

Two 2,500 h.p. gas turbine locomotives are under construction for the G.W.R., one by the Swiss Brown-Boveri Works, the other by Metropolitan-Vickers in Britain. Furnace oil fuel will be burned in each case. The gas turbine unit comprises an axial flow compressor, a heat exchanger and a combustion chamber. Compressed air is fed to the combustion chamber through the heat exchanger, and there fuel oil is consumed with a portion of this air, much as in an internal combustion engine, though a greater proportion of air mixes with the products of combustion, which is thereby cooled before passing through the turbine. This drives a generator giving power for electric motors that act on the driving axles at the outer ends of each of the two six-wheeled bogies. The principle is based on that employed in the Brown-Boveri experimental locomotive of this type that has been working in Switzerland and France since 1942. On this engine there are driving cabs at each end, one-man control is installed and enough fuel can be carried for a run of 250 miles, so that with the G.W.R. locomotive it should be possible to make runs without a stop between Plymouth and Paddington.

The new locomotives are to be capable of speeds up to 90 m.p.h. They will have auxiliary electric power for operating air, with vacuum brakes, all wheels being braked, and an oil fired boiler for train heating. The G.W.R. cab signalling A.T.C. system will be installed. It is anticipated that heavier loads than at present will be practicable when these remarkable locomotives are completed, and ready to take their place at the head of express passenger or freight trains.

Metropolitan Railway Tank Engines

Reference was made last month to the variety of locomotives noted along the steam operated outer section of the Met. and G. C. Joint line through Amersham and Aylesbury. Mr. C. R. L. Coles has kindly enabled us to illustrate Met. No. 94, "*Lord Aberconway,*" now broken up, which had its nameplate over the front splashers, about to run off a Baker Street train at Rickmansworth to give way to the electric locomotive used through the London area.

These 0–6–4Ts were the first of the modern series with piston valves and superheater to be built for the former Met. They were constructed by the Yorkshire Engine Co. in 1915–16. They have 5 ft. 9 in. driving wheels, 20 in. cyls. with 26 in. stroke, and a boiler pressure of 160 lb. per sq. in., and did good work on all types of train. Two survive as L.N.E. class "M2" with numbers 9076–7.

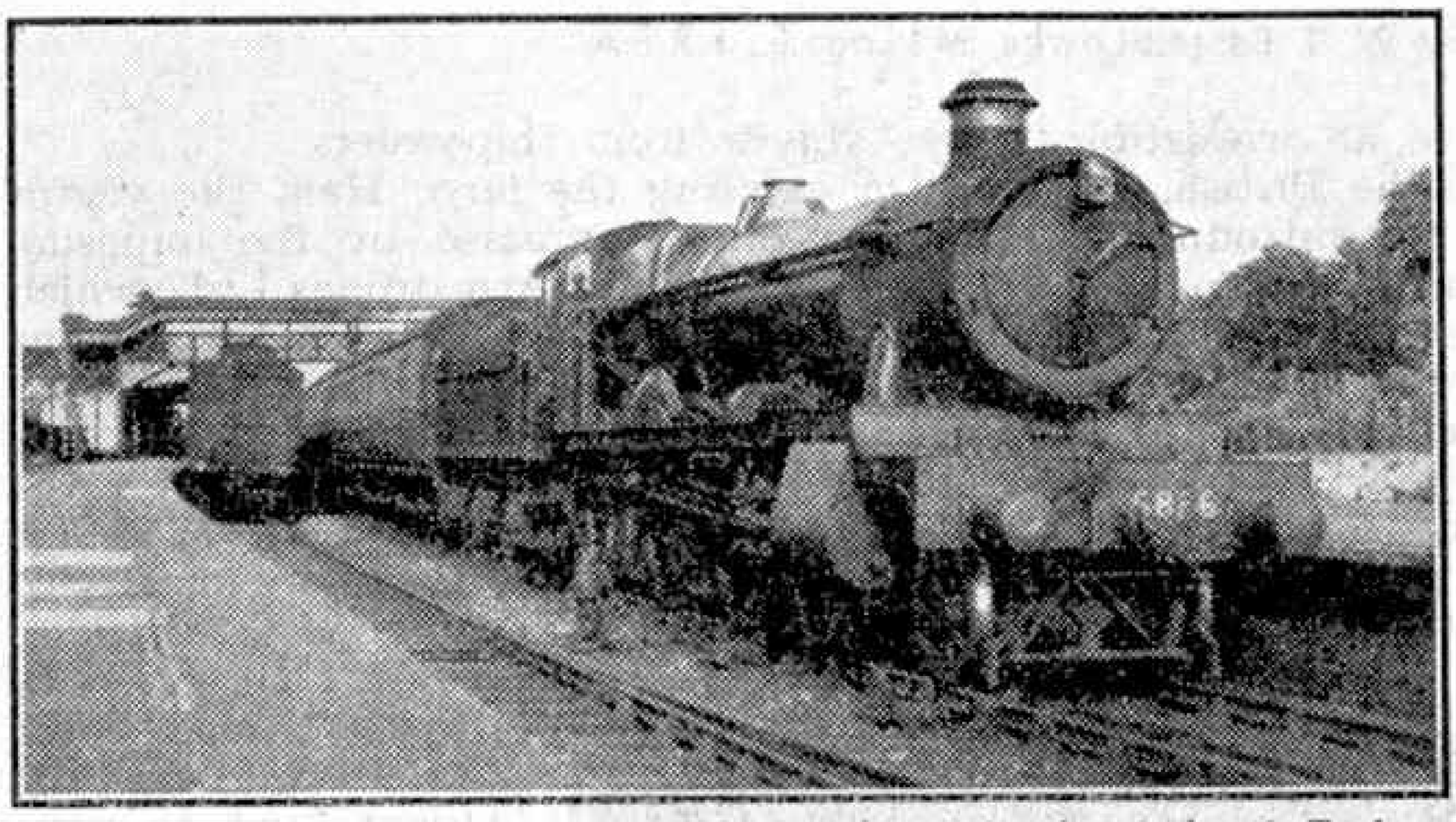
Southern Tidings

"West Country" class 4–6–2 express engines recently completed at Brighton and numbered 21C 154–7 are allocated to Stewarts Lane, Battersea shed, though at the time of writing No. 154 is on loan to Ramsgate.

No. 2510 is the first of the L.B.S.C. "E4" 0–6–2T class to be allocated for service in the Isle of Wight, so it will probably be renumbered in the "W" series and will replace one of the veteran "Terrier" 0–6–0T. A number of Isle of Wight tank engines are now painted light green, as is "M7" 0–4–4T No. 242, stationed at Eastleigh. More express tender engines are appearing in the malachite green finish.

"D1" Stroudley 0–4–2T, 2357, has been sold, it is understood, for work on a County Council private railway in the north, en route for which she left Ashford Works marshalled in a goods train. All the "L" class 4–4–0s now have boiler pressures of 180 lb. per sq. in. instead of the original 160 lb., and

cylinders lined up to 19½ in. diam. with 26 in. stroke. They are thus in line with the more modern "L1" type, but do not possess the re-designed long travel valve gear found on the latter engines. "K10" small 4–4–0 Drummond L.S.W.R. mixed traffic locomotives withdrawn are Nos. 136, 138, 149, 342, 344 and 347.



G.W.R. "Grange" class 4-6-0 No. 6826 on down stopping train at Taplow. Photograph by C. R. L. Coles.

The company's Works during 1946 produced 32 "West Country" locomotives, 52 steam train coaches, 127 electric train coaches and 1,162 wagons. For the L.N.E.R. 613 wagons were built. Passenger coaches also have been ordered from an outside firm, but deliveries are delayed by shortages of labour and materials. As on all railways in Britain, there is a serious lack of timber sleepers; supplies are not available in sufficient quantity to enable necessary renewals of track to be carried out as planned. There is also a shortage of concrete, steel and other components, though the company's own ballast and concrete plants in Devon are doing their best.

L.M.S. Locomotive Developments

A "Royal Scot" reboilered and modified to the new standard in January last was No. 6135 *"The East Lancashire Regiment."* Former L. and Y. 4–6–0 4-cyl. express engines are still seen at work in their original area. Standard 2–6–4Ts are much in evidence on the Clyde coast, Gourock or Wemyss Bay trains. The long familiar Pickersgill "4P" 4–6–2Ts built in 1917 for those and similar duties, numbered 15350 upward, are now more often employed on goods, Beattock banking o. spare duties. Two have been withdrawn The third "Patriot" 4–6–0 to be rebuilt as class "6P" is No. 5526 *"Morecambe and Heysham."*

New engines have been placed in service as follows: 2–6–0, "2F" Freight tender Nos 6412–3, shedded at 24E Blackpool; Nos. 6414-7, 23A, Bank Hall, Liverpool; Nos. 6418–9, 26A, Newton Heath, Manchester; 2–6–4T "4P," built at Derby, Nos. 2268–72, 28B, Edinburgh; 4–6–0 class "5" mixed traffic Nos 4995–6, 31A, St. Rollox, Glasgow; and Nos. 4997–9, 5A, Crewe North.

A pair of plaques portraying the coat of arms of Ulster, presented by a branch of the Overseas League, have been affixed over the nameplates of "Jubilee" 4–6–0 No. 5739 *"Ulster,"* which was built at Crewe in 1936 and has so far run about 734,000 miles. It is stationed at Camden, London, and runs regularly to Crewe, Liverpool or Manchester, etc. There was a largely attended ceremony at Euston when the plaques were unveiled by Lady Brooke, wife of the Prime Minister of Northern Ireland.

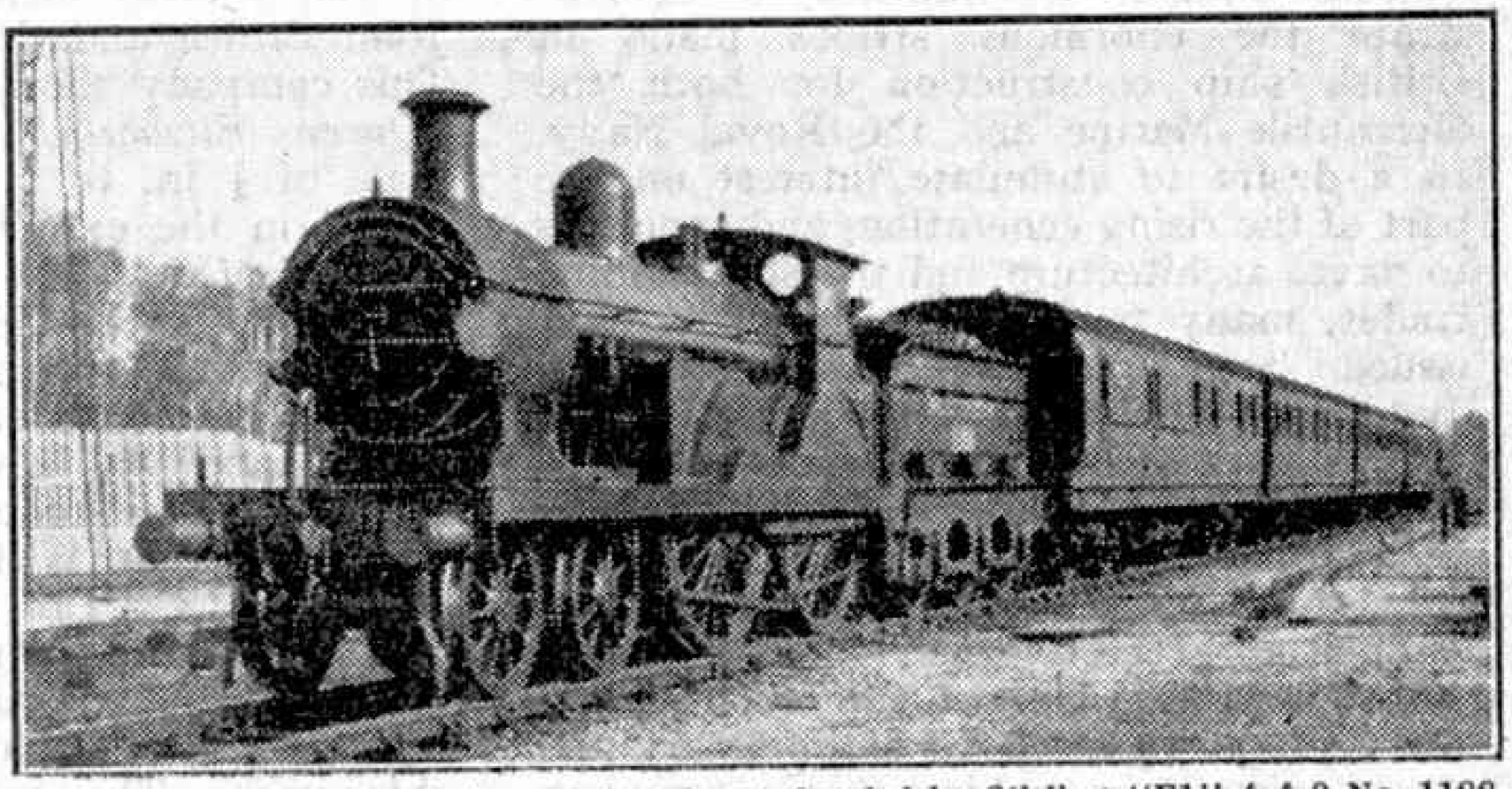
The company announce that 33 standard 4–6–2 express locomotives are to be equipped, as they pass through Works for general repairs, with self-cleaning smoke-boxes, hopper ashpans and rocking grates, such as are being fitted to the majority of new L.M.S. engines in order to facilitate quick clearance of accumulated ash, clinker and so on. All express passenger locomotives will be provided with speed indicators in the cab as soon as possible.

When last seen, the one remaining "Claughton," No. 6004, was commendably clean, although still appearing in the Midland red livery, which has not been used as a painting medium for at least six years. So she has lasted well in more ways than one!

"Railway Facts and Figures"

This booklet, recently issued by the British main line railways and London Transport, contains a host of interesting facts about the equipment, traffic and other features of British Railways. The varied activities of the British Railway system, including such widely-divergent items as allotments, hotels and steamships, are briefly dealt with. There is also a condensed summary of outstanding events in British railway history, and after a special section dealing with finance there is a short glossary of railway terms. Then follows a comparative list giving certain British railway features and the corresponding names that apply in American railroad practice.

Simplicity is the key word to the booklet and reference is aided by the alphabetical arrangement adopted. Copies can be obtained from the British Railways' Press Office, 2, Palace Chambers, Bridge Street, Westminster, London W.1.



S.R. Waterloo-Reading train entering Ascot, headed by Stirling "F1" 4-4-0 No. 1188. This photograph, by C. R. L. Coles, was taken prior to electrification of this line.

Wonderful Ship Models

A Tour of the Shipwrights' Exhibition

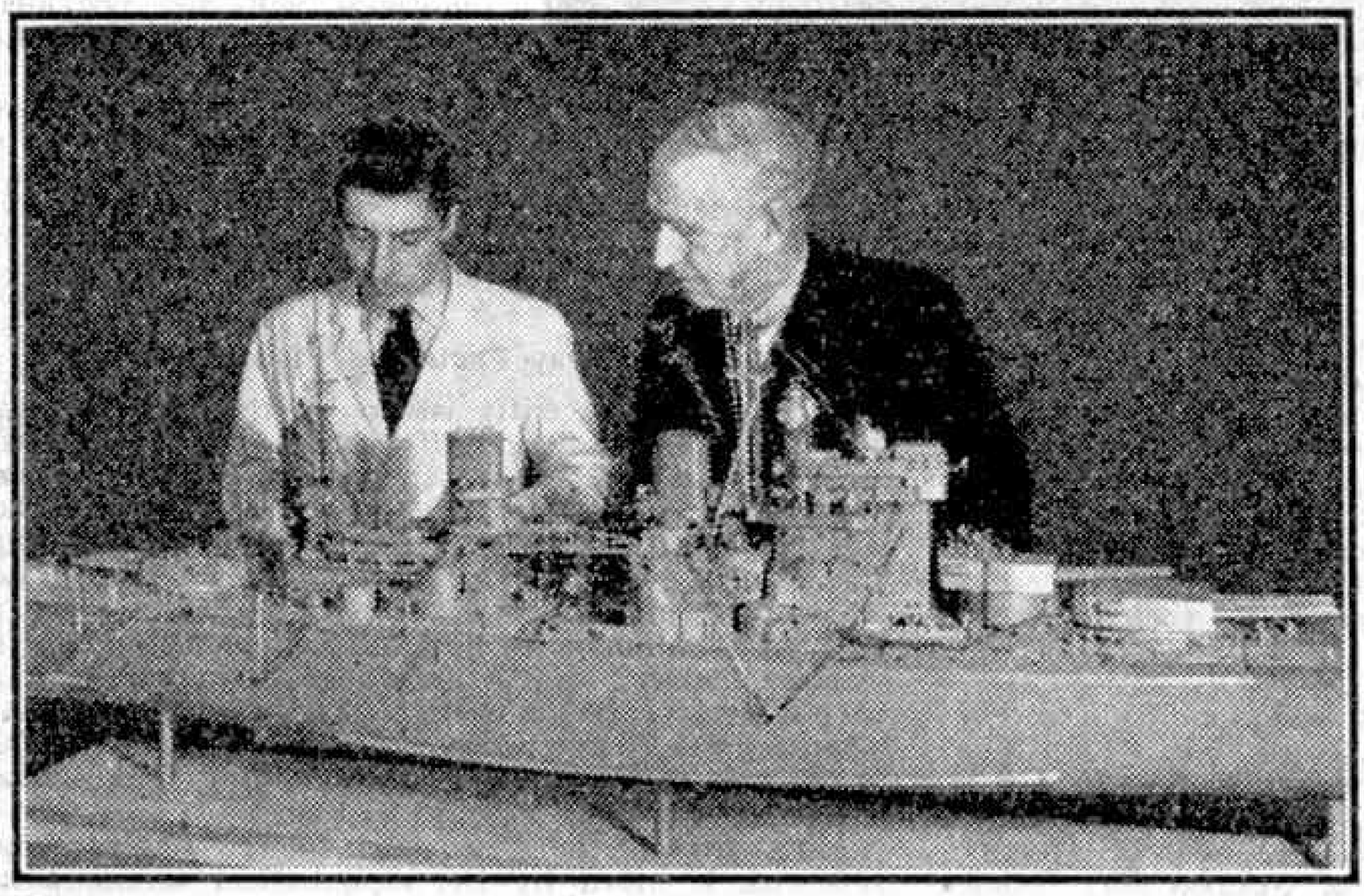
By W. J. Bassett-Lowke, M.I.Loco.E., F.R.S.A.

MODELS of ships have an irresistible appeal, especially to the British, the island race, who, until the introduction of aircraft, could only leave their country by crossing the sea or the narrow channel that separates them from the Continent of Europe. It is no wonder that the Exhibition organised by the Worshipful Company of Shipwrights was crowded during the whole time it was open.

This Exhibition was held in both halls of the Royal Horticultural Society at Vincent Square, Westminster, to demonstrate the enormous strides made in British ship construction for both the Mercantile Marine and the Royal Navy. In a desire to stimulate interest on the part of the rising generation, and aspirants to naval architecture and the shipbuilding trades, many free admission tickets were issued to apprentices and students. Judging by the attendance, it would appear that these young people took full advantage of this opportunity to increase their knowledge of the development of ships and shipbuilding, presented to them in such an attractive way.

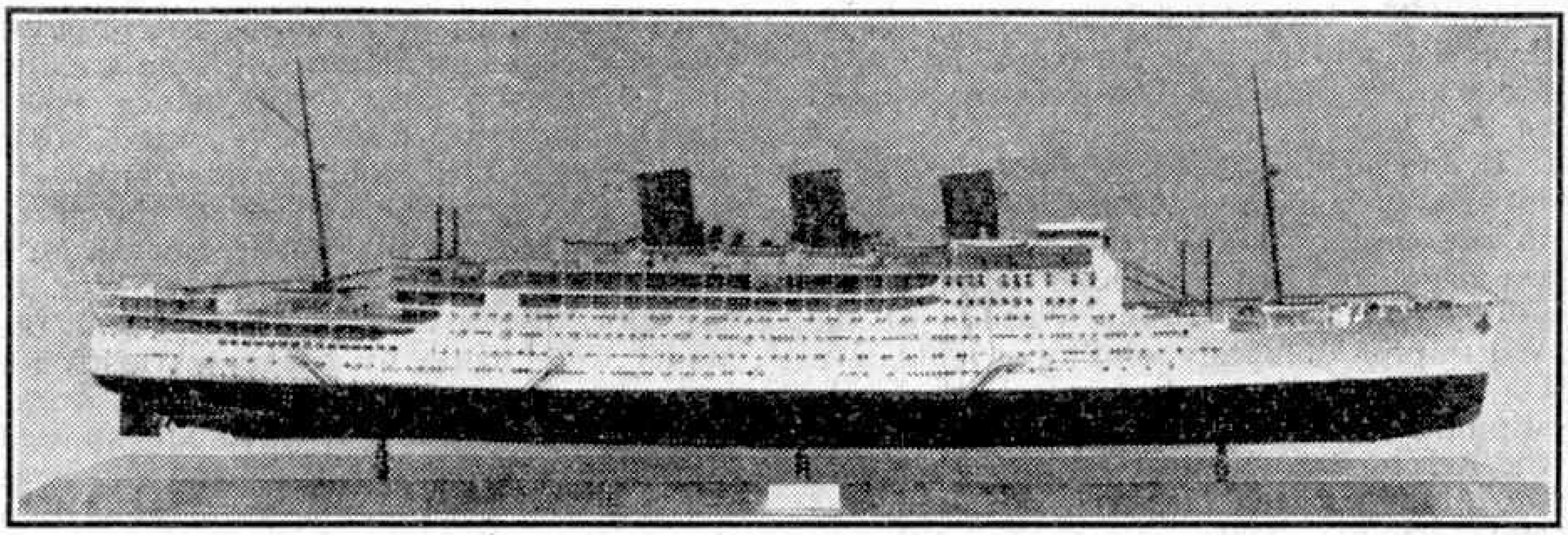
The new large Hall of the Horticultural Society was devoted to shipbuilders and those engaged in making ship equipment, while the smaller old Hall was occupied by exhibits from shipowners.

On entering the large Hall, the visitor was at once impressed by the imposing display of Vickers-Armstrongs Ltd., which comprised four large models of famous ships constructed in their shipyards at Barrow-in-Furness. There were two models of express passenger ships; the R.M.S. *"Strathmore,"* built in 1935 for the P. & O. Steamship Company for service between London, Bombay and Australia, and the R.M.S. *"Orion,"* also built in 1935, for the Orient Line, to serve between London and Australia. The other two models were of famous Naval ships; the battleship H.M.S. *"King George V"* and the aircraft carrier H.M.S. *"Indomitable."* These four models were to the same scale of $\frac{1}{4}$ in. to the foot, or 1/48th actual size. They were the subject of great admiration by all those who appreciate models of this character.



Mr. Bassett-Lowke watching a craftsman at work on a model of H.M.S. "Anson."

Complementary to Vickers-Armstrongs, on the other side of the central aisle, was the stand of John Brown and Co. Ltd., of Clydebank. This company showed a model of R.M.S. *"Queen Elizabeth,"* which, being to a scale of $\frac{1}{4}$ in. to a foot, was the largest model in the exhibition. There was also a model of the M.V. *"Essex,"* a twin-screw vessel built for the P. & O. Steam Navigation Co. Ltd. and completed in 1936 for use in the Australasian trade. On the same stand was a model of a new ship now in course of construction, the T.S. *"Media,"* that is being built by John Brown and Co. Ltd. for the Cunard White Star to run in their intermediate service in the North Atlantic. She is expected to be ready for service in the autumn of this year. The model, just completed by Bassett-Lowke Ltd., of Northampton,

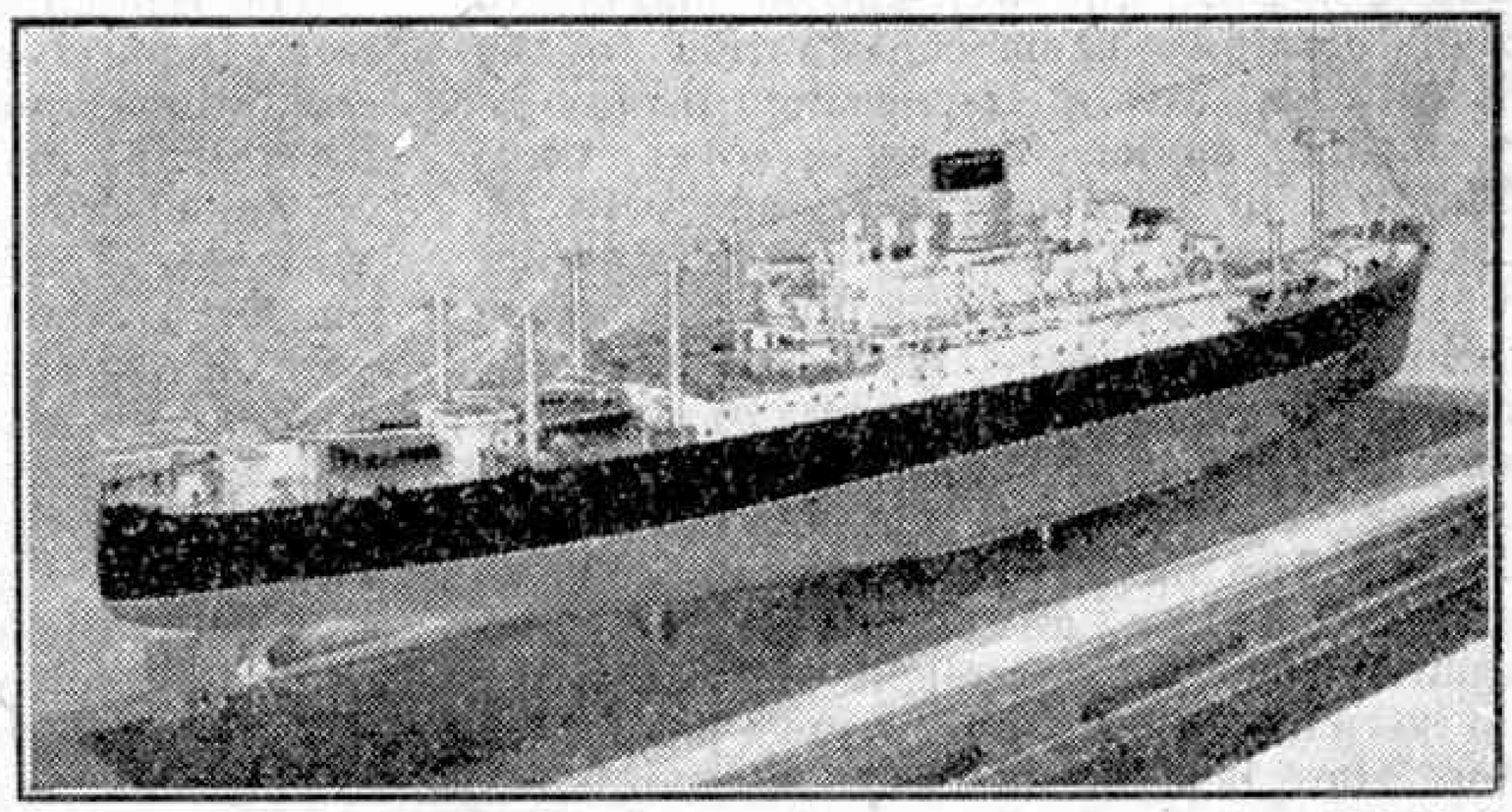


Model of P. & O. liner "Strathnaver" built by Vickers-Armstrong Ltd., by whose courtesy this photograph is reproduced.

demonstrated the attractive modern lines of this passenger-cargo vessel. Another exhibit on this stand was that of a gas turbine installation for a twin-screw cross-Channel ship. A Perspex case, made to the shape of the ship's hull, and an explanatory diagram above the model, made this an instructive feature for students of new methods of ship propulsion.

A little further down the main aisle was the stand of Swan, Hunter and Wigham Richardson Ltd., who were awarded the prize for the best display at the Exhibition. There was a variety of models here, of different scales, showing the range and scope of the work done by this well-known company. Several of the models, including those of Twickenham Ferry, H.M. Telegraph Ship "*Monarch*," and the train ferry "*Changkiang*," were excellent, but were finished in the traditional style, with gold or silver plated fittings. This, though very attractive, is sometimes looked on askance by shiplovers, who consider that the colours and finish of the model should resemble those of the actual ship. In addition, there were two warship models: the modern battleship H.M.S. "*Anson*," showing every external detail, and the aircraft carrier H.M.S. "*Vindex*." Both of these were finished in correct colouring and detail and were good examples of high class commercial model-making, by Bassett-Lowke of Northampton.

The large Hall was so full of interesting and attractive exhibits that it is only possible to comment on a few. Mention should be made, however, of the stand of J. I. Thornycroft and Co. Ltd., who showed a selection of models, the majority of which were to the same scale of $\frac{1}{2}$ in. to the foot, of war-time vessels built for the British Navy. These included H.M.S. "*Brecon*," a "Hunt" class destroyer; an L.C.M. type landing craft; a motor torpedo boat; a harbour defence motor launch, and other modern war craft, which formed an interesting contrast to a model of H.M.S. "*Lightning*"—Torpedo Boat No. 1, built in 1878, which was the first torpedo boat of the British Navy. The illustration on page 200 shows a model of a Thornycroft 67 ft. air-sea rescue launch, of which over 80 were built to a special design of the company by Thornycrofts and their sub-contractors. These vessels saved the lives of many thousands of British and allied airmen; it is on record that one boat alone rescued 1,200 men. The accommodation on board one of these includes crew space, galley, sick bay, officers' quarters and a radio



Model of Cunard White Star intermediate passenger-cargo liner "Media," built to the order of John Brown and Co. Ltd. by Bassett-Lowke Ltd.

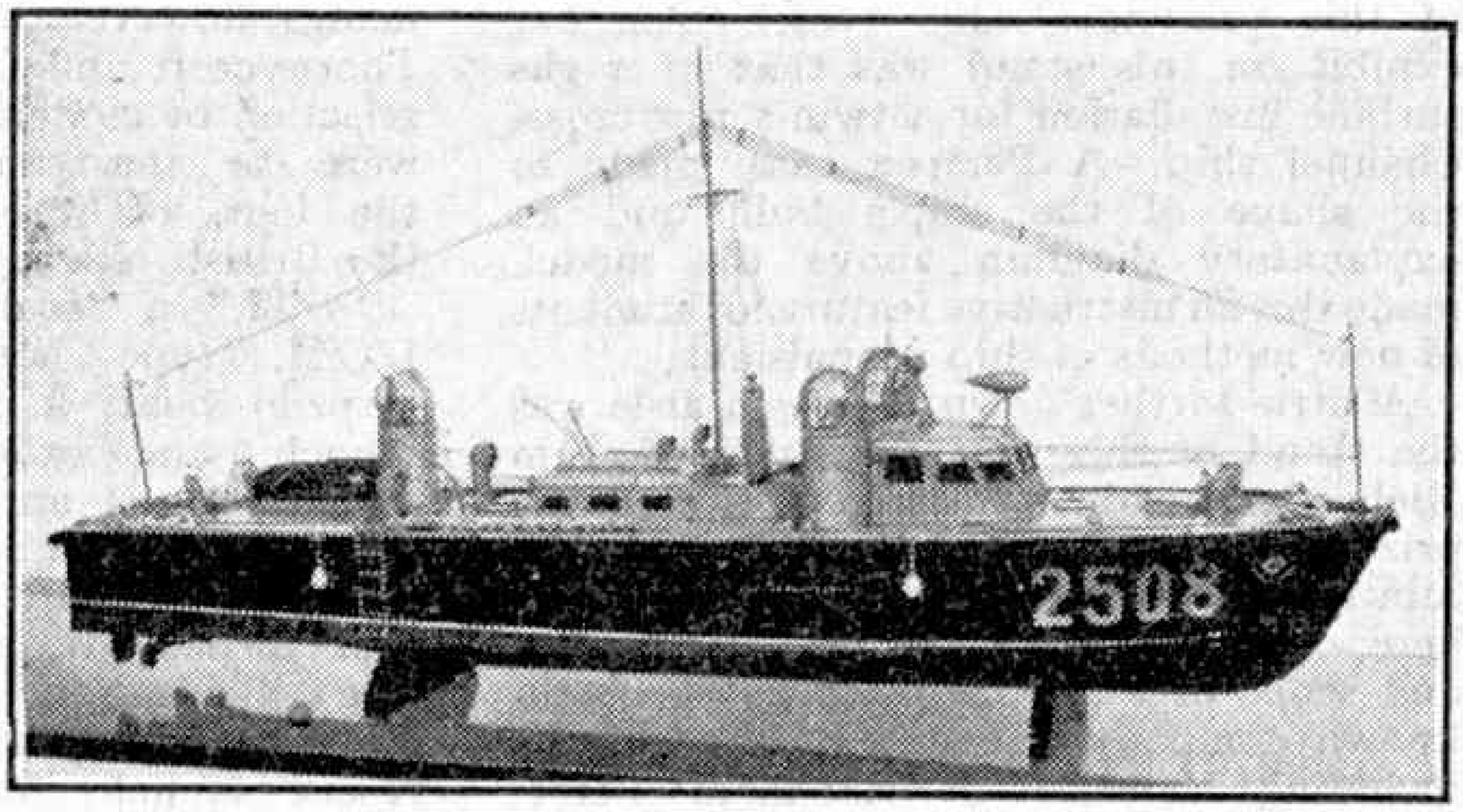
room. The propulsion is by two Thornycroft 12-cylinder petrol marine engines of 1,300 b.h.p. and the boats attain a speed of 25 knots.

Before leaving the large Hall, the visitor invariably inspected the models submitted in the competition for the best model of the Ark of Noah. Three prizes were offered by a Past Prime Warden of the Worshipful Company of Shipwrights, Mr. G. Wigham Richardson, and the only stipulation regarding the construction of the Ark model was that the measurements should be taken from those given in the Holy Bible. Fifteen entirely different interpretations were shown, some most elaborate in design and construction and others quite simple. The first prize was awarded for a model designed by Mr. W. L. Ash, a senior ship's draughtsman, and Mr. K. G. McBride, apprentice ship's draughtsman; the model was constructed by a joiner Mr. W. G. Warman Judging by the variety of models and the comments made on them by visitors, almost everyone seems to have a different idea as to what the Ark of Noah was really like.

In the smaller Hall, although there was not the amazing array of models as were shown in the large Hall, there were some exhibits of quite a different character. One exhibit, however, was common to both Halls; it was that of Wm. Harvie and Co. Ltd., the well-known makers of signal lamps. Their contribution to the Exhibition was a fascinating display of waterline models of ships, over three hundred in number, made specially by Bassett-Lowke Ltd., of Northampton, to a scale of 50 ft. to the inch. The idea behind this display was to show the visitor the enormous variety of types of ships, both British and foreign, for which Messrs. Harvie have supplied navigation lights. The models were set out in large glass cases on an imitation sea, and apart from the excellent detail shown in so small a scale, the models also gave, for the benefit of the layman, the characteristics of the various kinds of ships that sail the seas. Also, what is more important, they showed the progress that has been made in ship design and size since the year 1856, since when Harvie and Co. Ltd. have fitted some 23,000 ships with their signal lamps.

One of the finest models in the small Hall was that of the P. & O. liner R.M.S. "*Strathnaver*," built to a scale of $\frac{1}{4}$ in. to the foot. Both the actual ship and the model were made by Vickers-Armstrongs Ltd., at their naval construction works at Barrow-in-Furness. This model showed the same standard of style and finish as the four models previously mentioned in the stand of this company in the large Hall.

The Port of London Authority exhibit was one that attracted a great deal of attention here, especially from Londoners. It was a scale model of the river Thames, showing the whole tidal section of the river from an imaginary line drawn from Havengore Creek, Essex, and Warden Point, Kent, to Teddington.



Model of Thornycroft 67 ft. Air-Sea Rescue Launch. Photograph by courtesy of J. I. Thornycroft and Co. Ltd.

The Worshipful Company of Shipwrights were themselves represented on auxiliary exhibition stands. One of these, in the large Hall, included a very good model of the ill-fated "*Kobenhavn*," the largest sailing ship ever built in Great Britain. She left Buenos Aires for Australia in 1928, with 46 cadets and 16 regular officers on board, but after her departure she was lost with all hands and never seen again. This model, built by Mr. R. F. Bell, was awarded the championship cup (marine section) at the Model Engineers' Exhibition in 1946, and was constructed from the builders' drawings for the original ship.

This was probably the finest collection of models of ships and shipping equipment ever brought together in England.

Photography

Springtime Pictures

MAY to mid-June is a splendid time for the photographer, for during this period nature presents a constantly changing variety of fascinating subjects for pictures.

Blossom pictures are specially attractive, but are not quite such easy subjects as they appear. As a rule photographs of a whole tree in bloom are apt to be disappointing; it is generally better to select

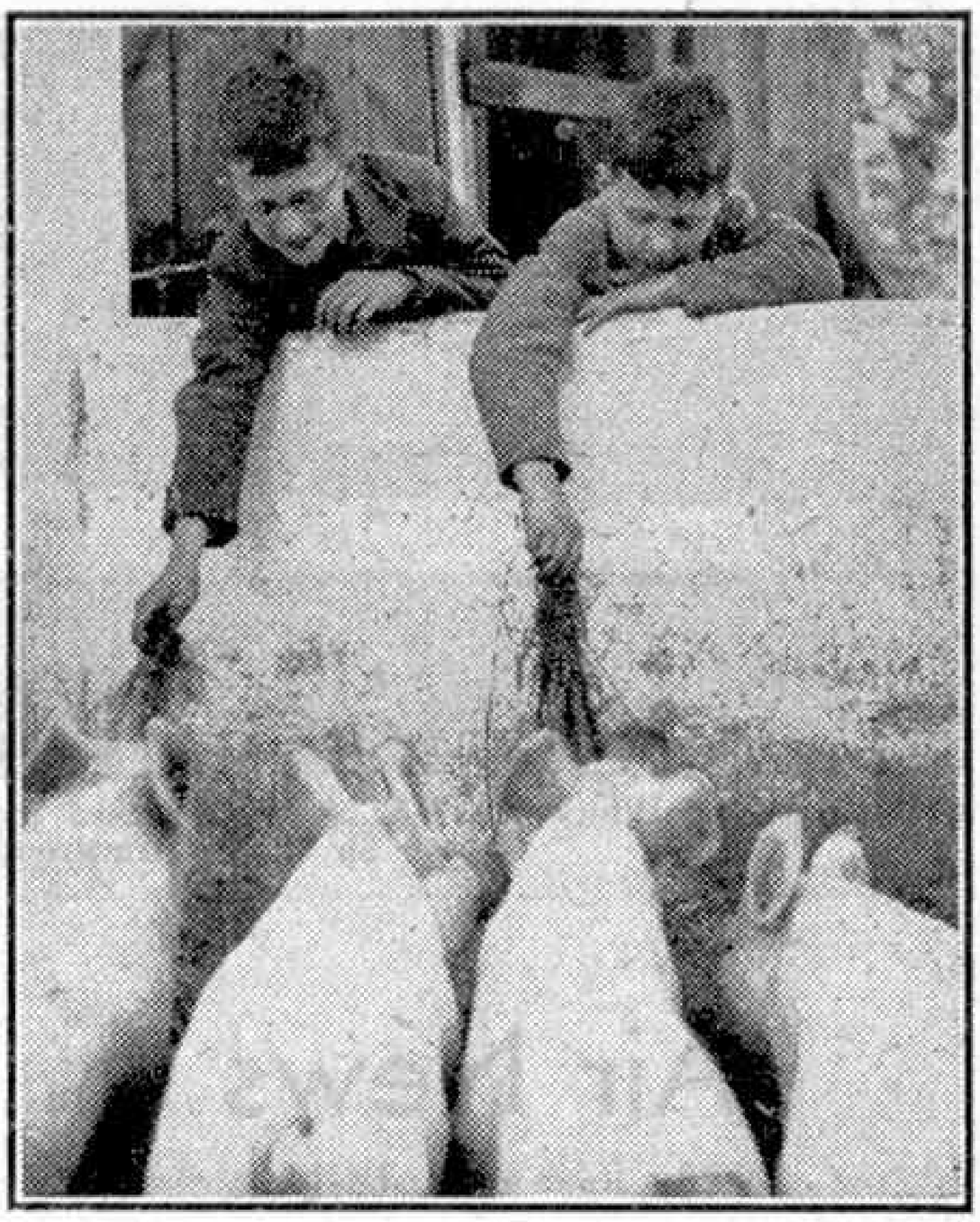
Goslings with Foster Mother. Photograph by F. Barr, Birkenhead.

a branch or even a sprig full of blossom. Panchromatic films are usually to be preferred, with a pale or medium yellow filter. They are definitely necessary for pictures of blossom-covered trees against a deep blue sky, otherwise the strong contrast between tree and sky that is so striking to the eye is largely or entirely lost.

For the best results sunshine is necessary; a dull day usually means a dull picture. Almost equally important is the absence of wind, as even a slight breeze can be a great nuisance in taking close-ups of sprays of blossom.

There is plenty of variety available, and many of the best subjects are at hand in one's own or in a neighbour's garden. Almond, pear, plum, apple and cherry are all good, as are also lilac and laburnum and pink and white hawthorn.

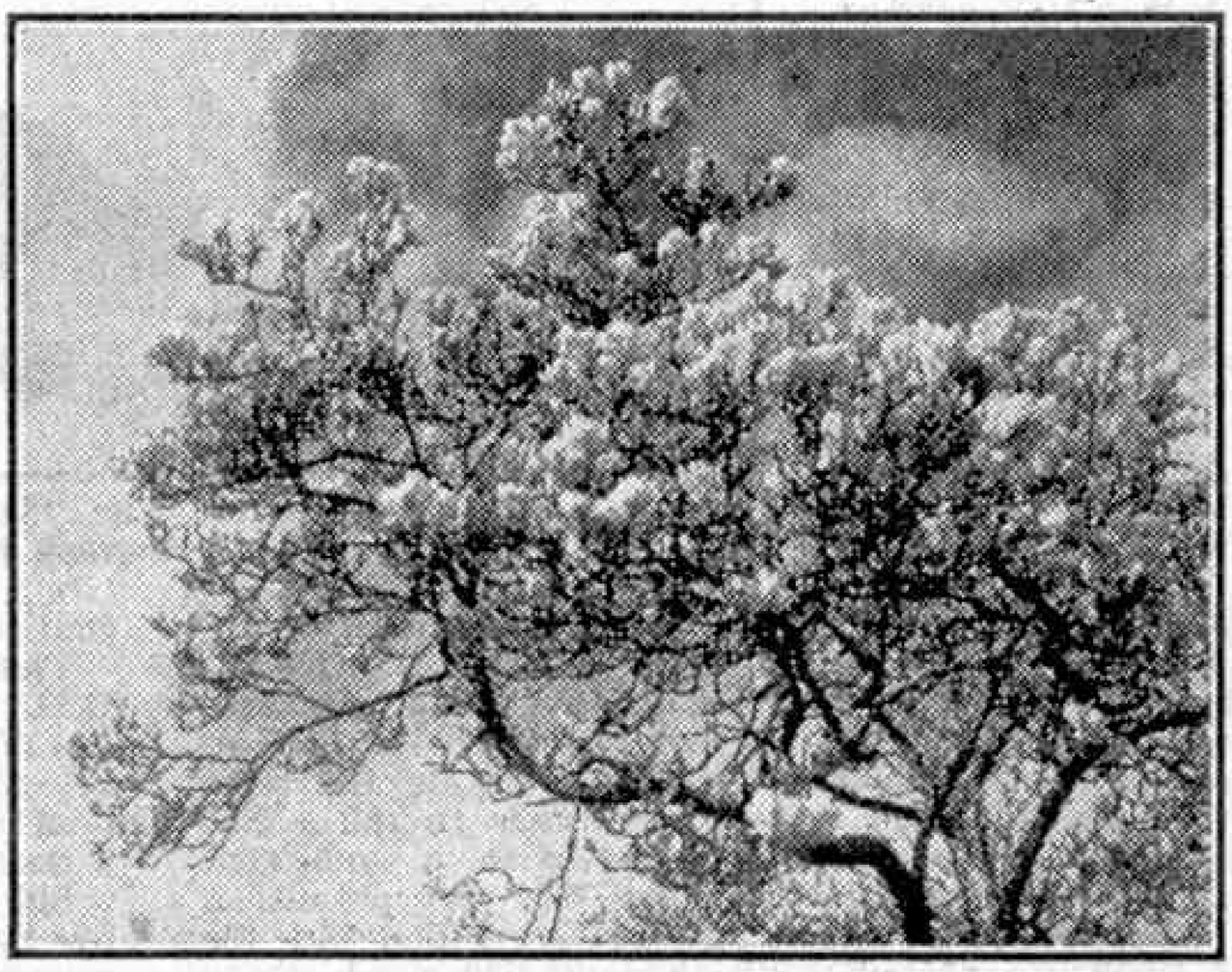
In addition to outdoor pictures, very interesting and beautiful results can be obtained indoors from twigs



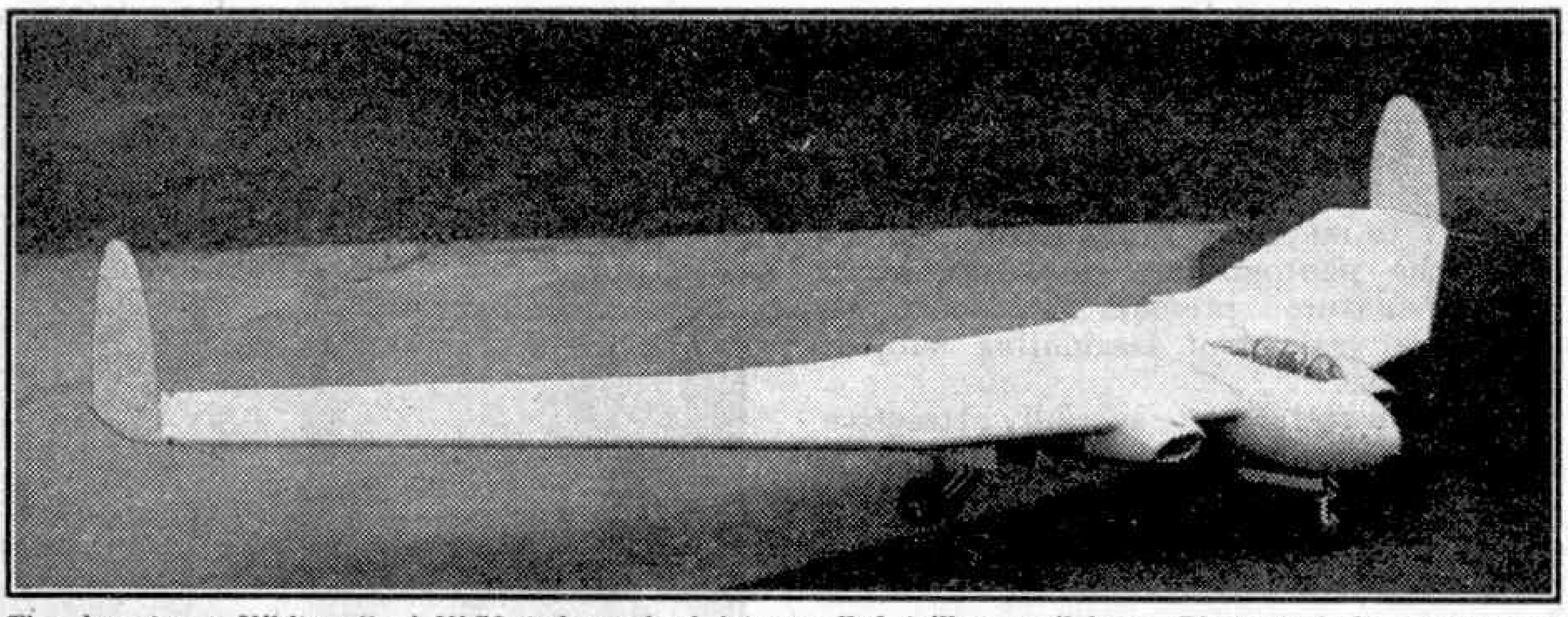
"Minding the Bacon." Photograph by H. D. Martineau, Ingleton.

of bloom carefully posed against a light background. A series of pictures representing a variety of different trees is well worth trying. The twigs selected should be as nearly as possible of the same size so that a comparative record of the details of the blossom is secured. A small album of prints of this kind is very attractive.

Our upper illustrations show "blossoms" of another kind. Pictures such as these are available anywhere in the country, and they provide lots of fun.



Magnolia Blossoms. Photograph by A. G. Dell, West Norwood, London S.E.27.



The Armstrong Whitworth A.W.52 twin-engined jet-propelled tailless mailplane. Photograph by courtesy of Sir W. G. Armstrong Whitworth Aircraft Ltd.

Air News

By John W. R. Taylor

A British Tailless Mailplane

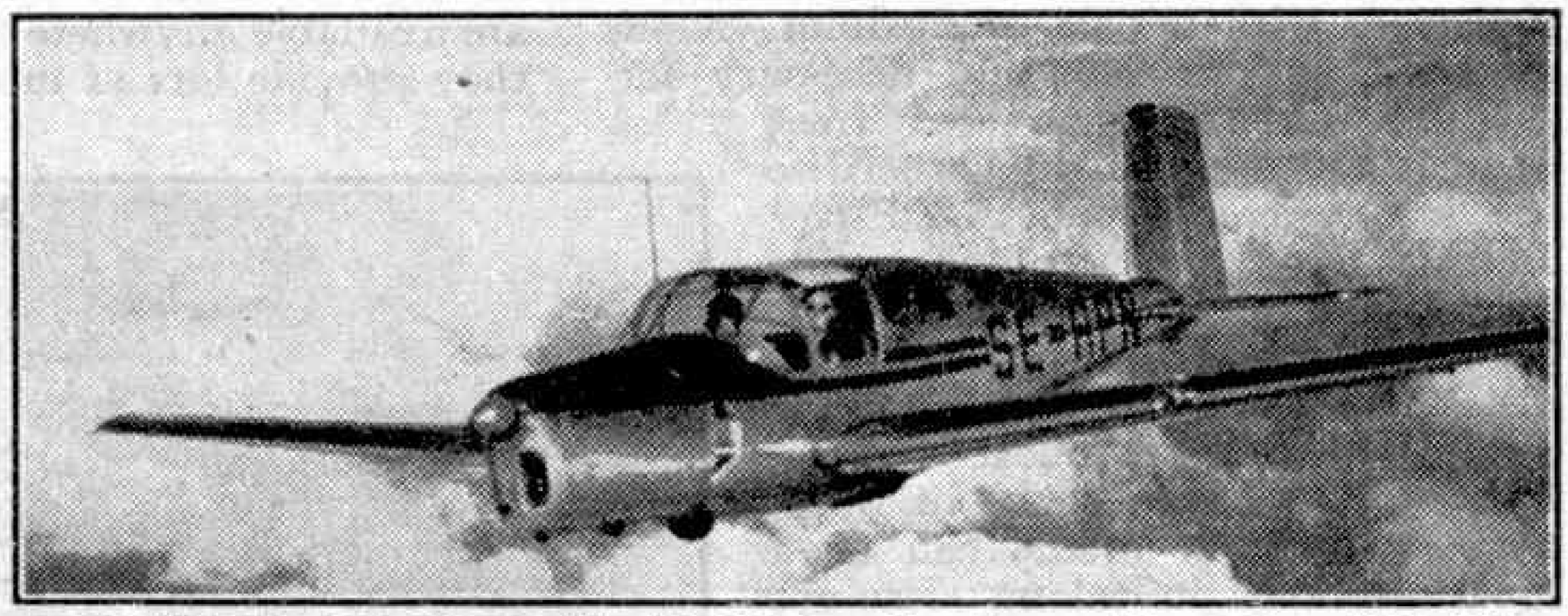
The new Armstrong Whitworth A.W.52 tailless mailplane has been described as the most advanced aircraft yet built in this country, and should prove capable of very high speeds. It is a large aircraft with a span of 90 ft. and is almost a pure flying-wing, the crew cabin having been put forward of the wing only to improve the pilot's field of vision. This wing is sharply swept-back with no dihedral, and has a fin and rudder at each end. The two Rolls-Royce "Nene" jet engines are situated in low-drag nacelles on each side of the cabin, which is pressurised for high altitude flight, and the pilot has an ejector-type seat for emergency use. A retractable tricycle undercarriage is fitted.

The A.W.52 is almost identical in layout and proportion with the A.W.52G glider, which was built and flown some time ago to prove the practicability of the design before building the full-size machine. The fact that hardly any major changes have been necessary says a lot for the original design. A disadvantage of swept-back wings is the tendency to early wing-tip stall, which makes them unstable at low speeds. Armstrong Whitworth hope to get over this trouble by what is known as boundary layer control. This means in effect that airflow over the wing forward of the control surfaces is sucked inside the wing through slots, and led through ducts to the engine nacelles. The results achieved with a somewhat similar installation in the glider were very promising. No performance figures are yet available, but the A.W.52 is expected to fly at about 650 m.p.h. at an all-up weight of some 15 tons. It will probably be followed by a larger, passenger-carrying type.

Swedish "Safir" Light Aircraft

One of the most interesting light aeroplanes designed on the Continent since 1939 is the new Swedish SAAB "Safir" illustrated on this page. The SAAB Aircraft Company is little known in this country, chiefly because up to two years ago the demand for aircraft to re-equip Sweden's Air Force confined them to the design and construction of fighters and dive bombers. Now that the war is over SAAB have been able to turn their attention to the production of two types of civil aircraft, the "Scandia" 24-passenger transport and the "Safir" three-seater light aircraft, both of all-metal construction.

The "Safir" was designed to combine complete safety with the best possible operating economy. It has pleasing lines, its roomy cabin is well laid out, with dual control, and behind the left-hand front seat there is a useful luggage compartment. The machine can be quickly adapted for carrying light freight or a stretcher as the two right-hand seats are removable, together with the second set of flying controls. It is very pleasant to fly and retains full controllability even in a stall; it will not spin.



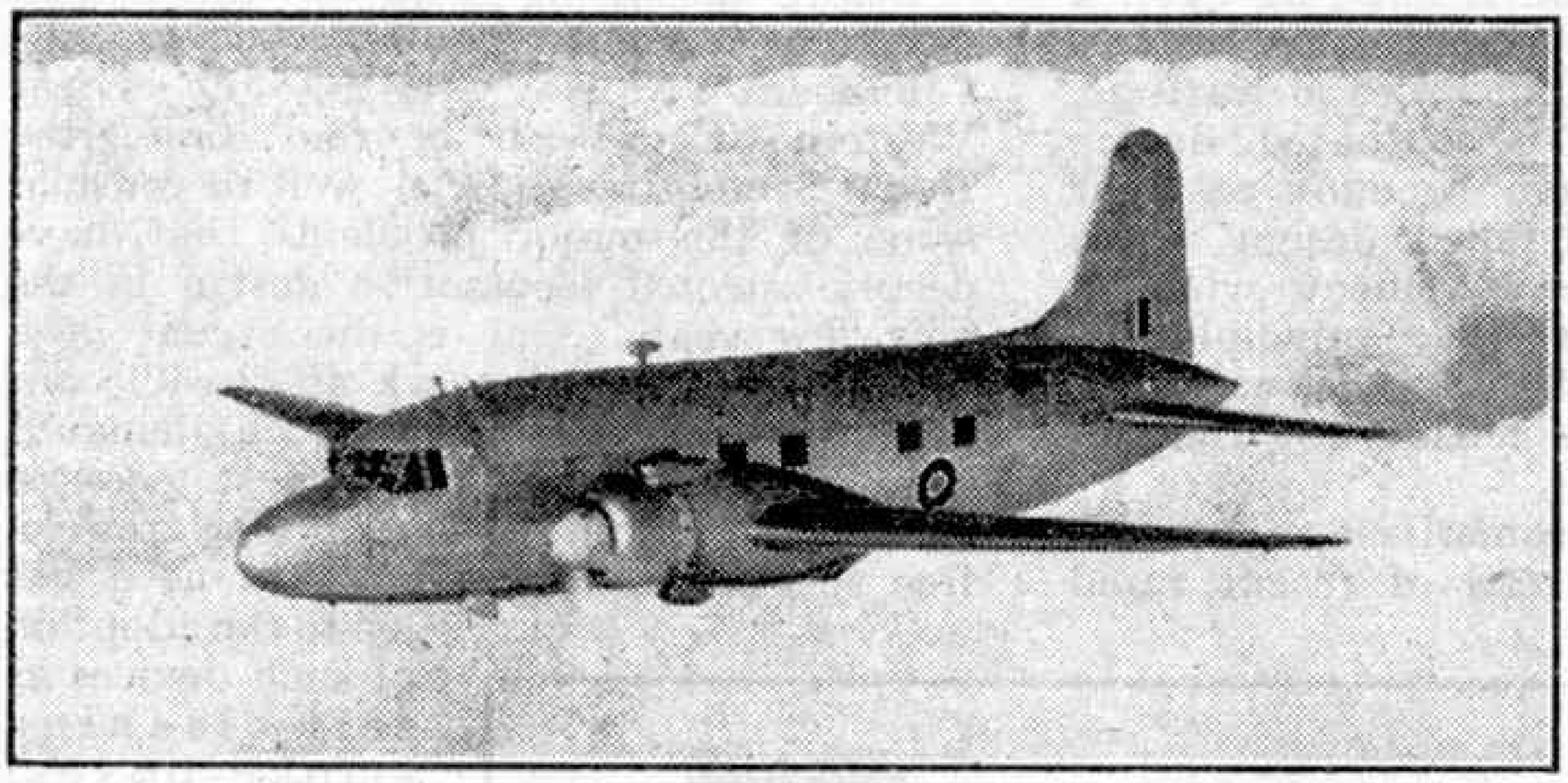
A new Swedish civil aircraft. The "Safir" is a 3-seater machine with a D.H. "Gipsy Major" engine. Photograph by courtesy of Svenska Aeroplan A.B.

This Swedish three-seater is powered by a 145 h.p. D.H. "Gipsy Major" X engine, has a top speed of 146 m.p.h., and can cruise for 650 miles at 127 m.p.h. It will take off in only 590 ft. from grass and land in 500 ft. The machine is also available as a floatplane.

Six "Safirs" were delivered recently to Ethiopia by Swedish instructors. One machine is for the personal use of the Duke of Harrar and the others will go into service as standard trainers in the Ethiopian Air Force.

The Royal "Vikings"

The decision to provide a flight of four Vickers "Viking" air liners for the use of the Royal Family during the South African tour was a timely tribute to the reliability and comfort of British aircraft. The Royal "Vikings" are similar to the standard production machines in service all over the world,



The King's "Viking," one of four provided for the use of the Royal family during the South African tour. Photograph by courtesy of Vickers-Armstrongs Ltd.

except for certain interior refinements. Two of the machines have been fitted out for the separate use of the King and Queen, a third for the staff, and the fourth machine has been equipped as a flying workshop with tools and spares sufficient for all normal servicing operations.

The interior decoration, which is by Vickers themselves, is of an exceptionally high standard, and the colour scheme is blue and beige. Each machine is air-conditioned and provided with fluorescent lighting. The crew's cabin in the nose of each Royal "Viking" is larger than on standard machines to accommodate a navigator and additional radio and radar equipment. The latter includes medium and high-frequency air-to-ground radio, "Gee" position-finding and "Rebecca" homing/beam approach radar installations. Aft of the cabin is an office for the Commodore, to whom the pilot is responsible. His office has a large desk, and, like the staterooms, is provided with an intercommunication telephone, altimeter, clock and airspeed indicator. The two large staterooms each contain four seats, a table and bookcases and are separated by two built-in wardrobes. All the seats are of the Irvin chair-chute type, the first time these have been fitted to civil aircraft, and the windows are jettisonable in an emergency.

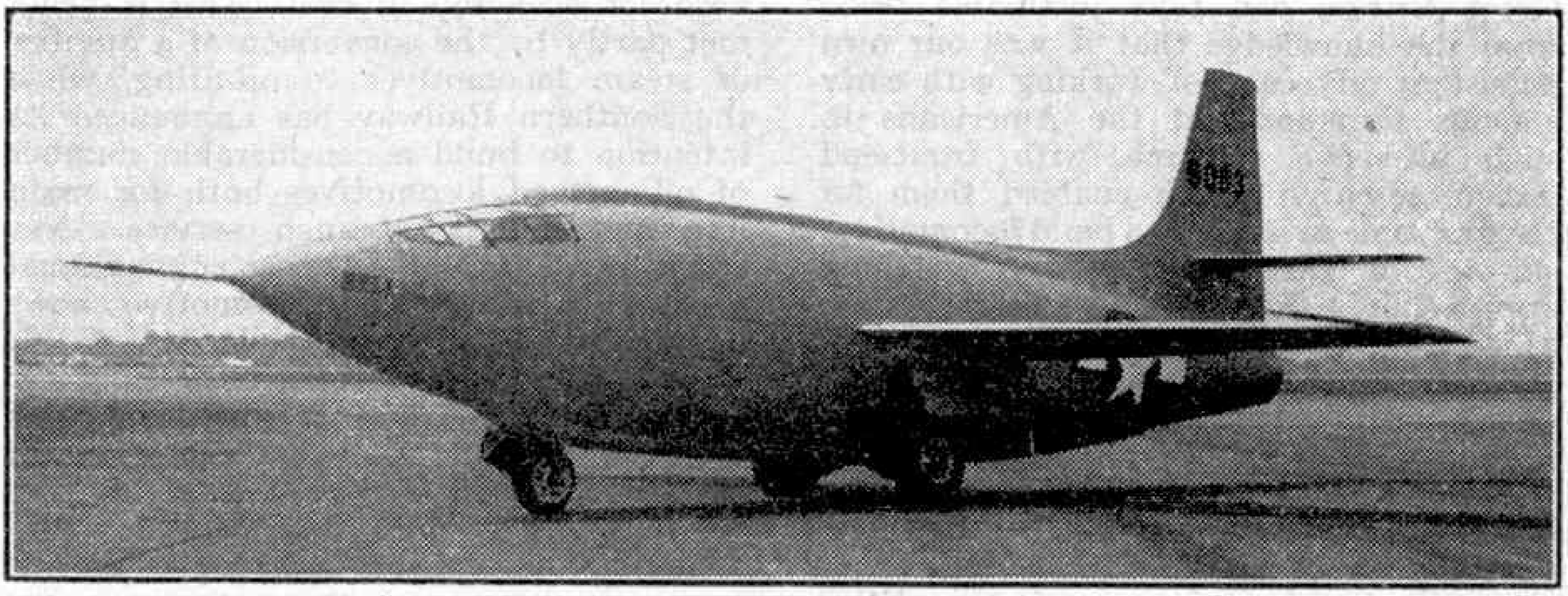
New American Rocket-Propelled Aircraft

The Bell XS-1, illustrated at the foot of this page, is the first aeroplane ever built to fly at speeds higher than the speed of sound—760 m.p.h. at sea level. It was designed by the Bell Aircraft Corporation, U.S.A., in collaboration with the U.S. Army Air Forces and the National Advisory Committee for Aeronautics, and flew for the first time towards the end of last year.

The XS-1 is not a fighter, but purely an experimental aircraft with the strongest airframe possible, to withstand the exceptional compressibility shock waves as it attempts to break through the "sonic barrier." It has a wing span of only 28 ft. and weighs 13,069 lb. fully loaded. The machine is powered by a rocket-engine designed by Reaction Motors Inc. and based on the German Walter unit used in the well-known Messerschmitt 163 tailless interceptor fighter. It consists of four units, burning alcohol and liquid oxygen, each of which produces a static thrust of 1,500 lb., giving a total thrust output of 6,000 lb. for the aircraft. Special controls enable the pilot to use any or all of the four units to vary performance.

The first prototype will not be capable of the tremendous speed for which it was originally designed —1,700 m.p.h. at 80,000 ft.—as it was completed before the engine was fully developed. It was intended to use a special turbo-pump to force the fuel into the engine, but this was not ready, and instead the fuel is pressure-fed. Because of this the XS-1 can fly for only 2½ min. at full power instead of the designed 4.2 min., and has an estimated speed of 1,000 m.p.h. at 60,000 ft. The estimated rate of climb has also dropped from 45,000 ft. per min. to 28,000 ft. per min. But even these reduced figures are rather staggering!

The XS-1 is released at height from the bomb-bay of a "Superfortress," in the same way as the Japs released their Baka suicide aircraft.



This odd-looking machine is the Bell XS-1, a new rocket-propelled experimental machine described on this page. Photograph by courtesy of the Bell Aircraft Corporation, U.S.A.

British Locomotives of the Near Future

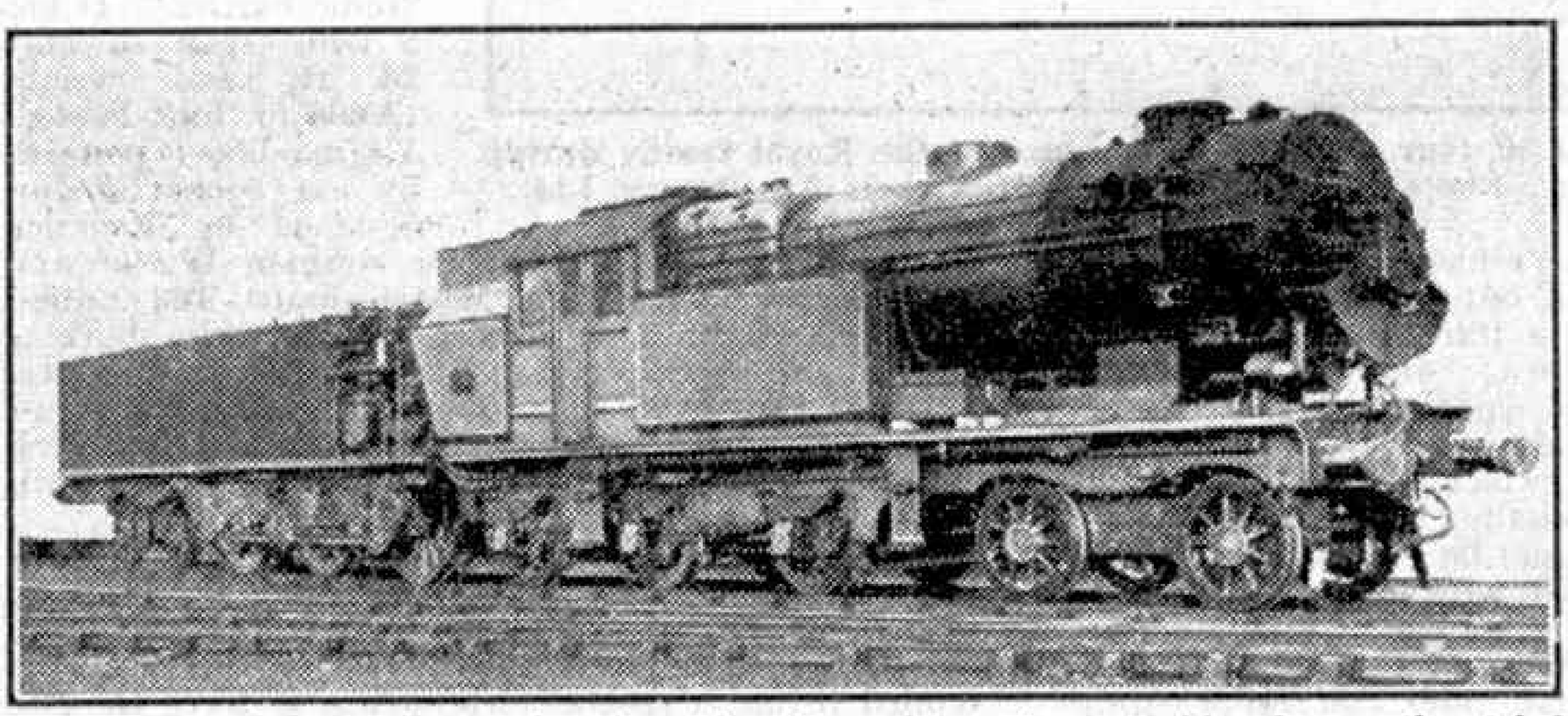
By O. S. Nock, B.Sc., A.M.I.C.E., M.I.Mech.E

THERE are very definite signs just now that Great Britain is entering upon a period of intense development in railway motive power. The difficulties of wartime, sustained and even accentuated during the past winter, have brought to light many features of detailed design where there is room for improvement, while in greater questions of basic principle the seriousness of the transport situation is giving rise to much fertility of thought and new design.

In this respect it sometimes makes one a little envious to read of recent rapid developments in the U.S.A. For example, the Pennsylvania Railroad and the Baldwin Locomotive Company between them have produced in the "T.1." 4–4–4–4 a locomotive the performance of which is second to none the world over. In studying those locomotives, however, we in Great Britain can take justifiable pride from the knowledge that it was our own persistent advocacy of working with early cut-offs that inspired the Americans to such intensive research with front-end design, research which enabled them for the first time in history to build locomotives showing a thermal efficiency anything approaching that of the best British designs.

Apart from one or two isolated examples, development of first-line passenger and freight locomotives for the home railways was almost at a standstill during the war; yet those few examples are in themselves outstanding, without taking into consideration the circumstances of unparalleled difficulty in which they were conceived, built and put into service.

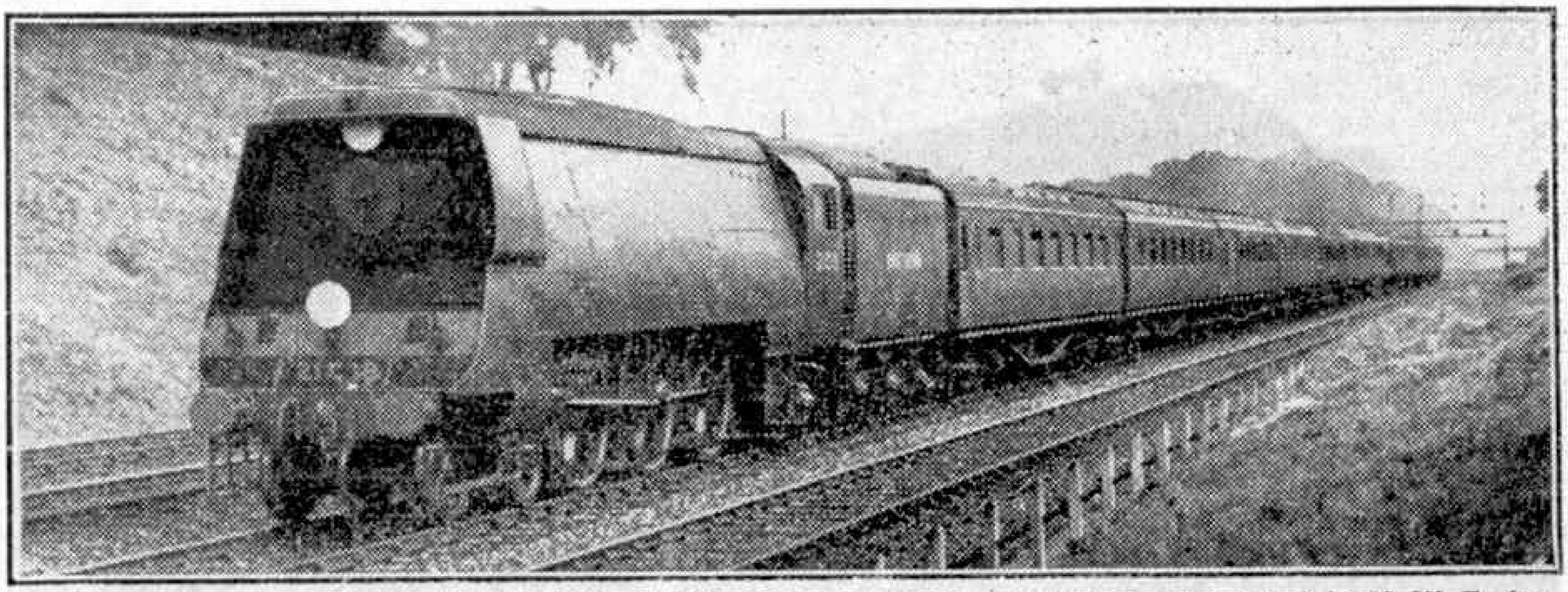
Before discussing some of the salient points of such locomotives as the "Merchant Navy" 4–6–2s, the Great Western "Counties," or the "Converted Royal Scots" it will be as well to consider some of the major problems that have deeply affected locomotive design in the past few years. One is the urgent need for getting as much work as possible out of every engine, a need which demands easy maintenance, the shortest possible time in the running shed, and long trouble-free service on the road. This need has led to the adoption of such devices as self-cleaning smoke-boxes; rocking grates, by which the cleaning of the fire while running may be made easier; and the sand gun, which enables the flue tubes to be blown clean of soot while the engine is at speed. In both classes of Pacific on the Southern Railway Mr. Bulleid has put the whole of the valve motion into an oil bath, on the principle that no attention will need to be given to the gear between successive shoppings of the engine.



An unsuccessful experimental engine. The Beyer-Ljungstrom turbine locomotive tried on the L.M.S. Photograph by courtesy of the L.M.S.

Concurrent with these operational and maintenance problems is the overriding need for economy in coal. This is being met partly by the conversion of a number of steam locomotives to oil-firing, while the Southern Railway has announced its intention to build a considerable number of oil-engined locomotives both for main line and country branch service. Yet again development of the conventional type of coal-fired steam locomotive shows no sign of stagnation, while Mr. R. C. Bond, Deputy Chief Mechanical Engineer of the L.M.S.R., has expressed his own opinion that the non-condensing steam turbine locomotive also has great possibilities.

So far as express passenger motive power is concerned there seems every prospect of our seeing at work in Britain

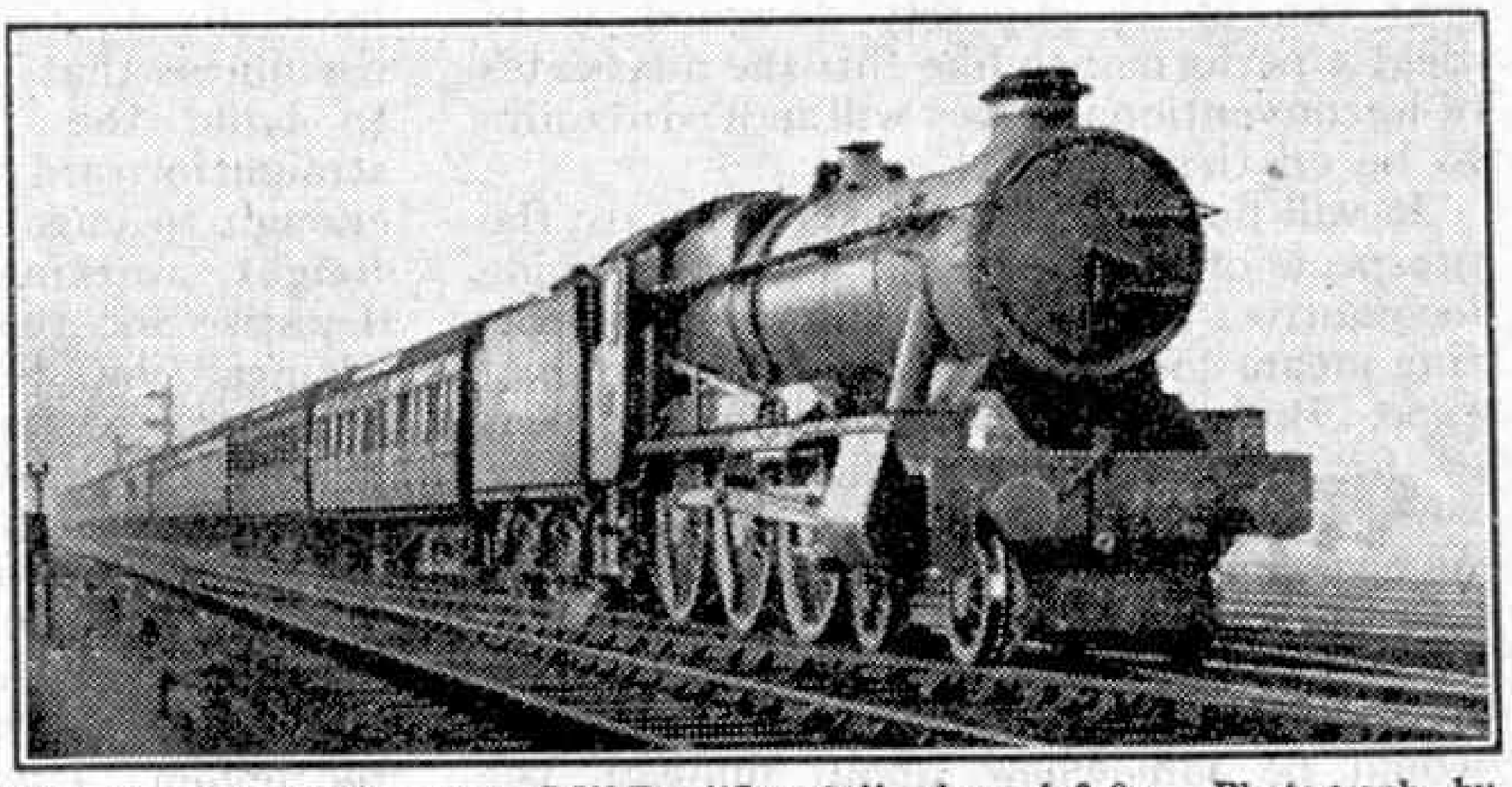


An ultra-modern express locomotive. S.R. No. 21C 19 of the "Merchant Navy" class. Photograph by M. W. Earley.

before so very long high-capacity diesel-electrics on the Southern; electric locomotives of the C–C type, also on the Southern; gas turbines on the Great Western, and the possibility of more steam turbines on the L.M.S. To these must now be added the very interesting experimental diesel-electric express locomotives now being designed for the L.M.S.R. which will be described and illustrated next month. The success of the L.M.S. "Turbomotive" No. 6202 is a triumph of perseverance in the face of many teething troubles; she can now be considered as a thoroughly reliable motive power unit, and is unique in this country in being the only locomotive of other than the conventional reciprocating type to have passed beyond the experimental stage.

It has now to be considered as to what extent the building of these unconventional locomotives is justified by the results. Although no actual figures of cost price have been given it can be taken for granted that the "Turbomotive" is considerably more expensive to build than a standard "Princess Royal" class Pacific. So far she has not shown any appreciable saving in coal; but it must be remembered that she was an experimental engine and that a great deal of practical experience in running a turbine engine had to be obtained. A large proportion of the difficulties encountered with her have been purely mechanical, but her trials have unmistakably pointed the way to greater gains in efficiency. There is every possibility that were new turbine engines to be built embodying the fruits of experience gained with No. 6202, the savings in fuel might be considerable.

In this however we are making comparison with the "Princess Royal" class—necessarily because the "Turbomotive" carries the same design of boiler. But locomotive design has progressed rapidly on the L.M.S. since the second series of "Princess Royals" was turned out in 1935. There have been the "Coronation" Pacifics, and still later, in the midst of the war, the "Converted Royal Scots." It would perhaps be invidious to suggest that these latter engines represent the highest development so far in British steam motive power, but in no locomotives, not even in America, has expansive working of the steam in the cylinders been reduced to such a fine art. By the courtesy of the late C. E. Fairburn, formerly Chief Mechanical and Electrical Engineer of the L.M.S., I was afforded some opportunities of observing these engines at work from the footplate, and never have I witnessed



The pioneer of the new G.W.R. "County" class 4-6-0s. Photograph by M. W. Earley.

The shape of things to come in Britain? Denver and Rio Grande Western Railroad 5,400 h.p. 4-unit Diesel electric locomotive. Photograph by courtesy of the Denver and Rio Grande Western Railroad.

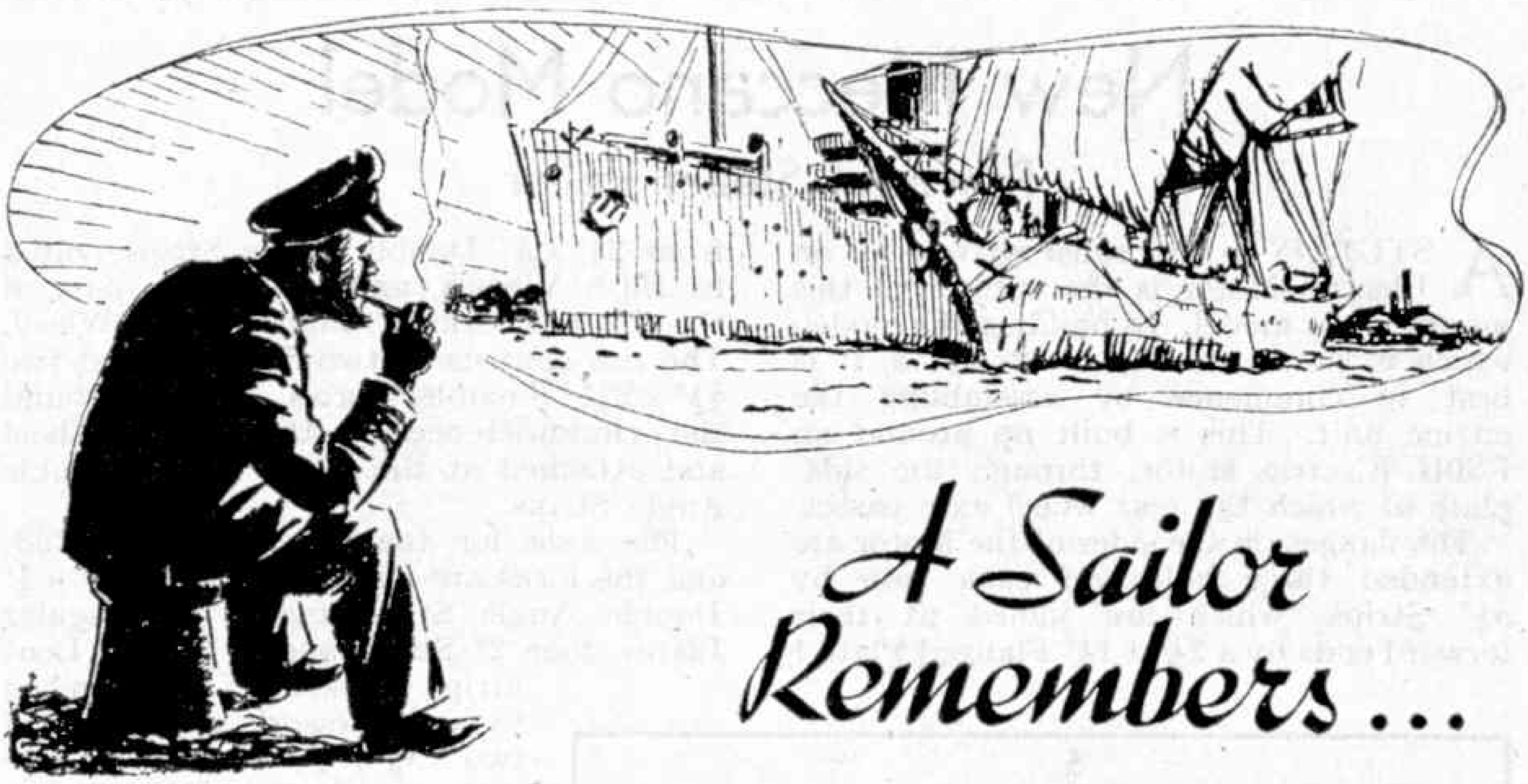
such high horsepowers developed on such early cut-offs.

Among other experiences I rode from Leeds to Glasgow on engine No. 6117 *"Welsh Guardsman,"* and for long periods the steam was being cut off after the pistons had travelled no more than 10 per cent. of their stroke. This moreover was in working the heavy 10 a.m. express from St. Pancras to Glasgow. After this run I had some very interesting correspondence with Mr. H. G. Ivatt, the present C.M.E. of the L.M.S., and he showed me some indicator diagrams taken on engine No. 6138 *"London Irish Rifleman"* on which the cut-off was no later than *five per cent.* This means that during the piston stroke of 26 inches the valves were admitting steam only during the first 1¼ inches. Yet with this mere breath of steam the engine was developing 925 horsepower, while running at 62 m.p.h. This is of course an astounding achievement. When the ordinary steam locomotive with the conventional Walschaerts valve gear can be so superbly designed as to yield a performance like this the advocates of unconventional types will indeed require to be on their mettle.

It will doubtless be asked, what are the prospects of diesel-electric and gas turbine locomotives against the ordinary reciprocating steam locomotive of the conventional type. Both alternatives offer the prospect of far higher overall efficiency, though with a considerably higher initial cost. As a general figure it can be said that the cost of a diesel-electric locomotive is roughly 2½ times that of a steam locomotive of equal power, and that a gas turbine would be somewhere about midway between the two. Now as regards efficiency the reciprocating steam locomotive turns not more than 10 per cent. of the latent energy in the fuel into useful work; and it is only the very best engines that give results so good as that. The gas turbine on the other hand is expected to have an overall efficiency of about 20 per cent., so that one might reasonably expect to get the same work as from a steam locomotive with half as much fuel used. The overall efficiency of the diesel-electric is still higher.

To justify the high initial cost of a gas-turbine or diesel-electric locomotive the duties must be arranged to get maximum use out of it, and that is where the intense interlaced services of the British railways may lead to difficulties. It is not always possible to arrange high-capacity return workings, and it would obviously not be an economic proposition to use an expensive special locomotive on a light, or easily-timed train. The steam locomotive, relatively cheap, is easily adaptable to any conditions, and suits itself automatically to the load. It is this general usefulness that has led the Great Western to build the "County" class—a simple straightforward two-cylinder job, powerful enough to engage on heavy grade or fast freight working, and fast enough to deputise for the "Castles" and even the "Kings" on the heaviest expresses. I witnessed a fine example of "County" performance last summer when travelling from Plymouth to Bristol. A defect developed in our regular engine, and at Taunton No. 1010 was requisitioned at a moment's notice, to haul an enormous 15-coach train weighing 525 tons behind the tender. I was riding on the footplate and saw with what

(*Continued on page 220*)



A Sailor Remembers ...

Fishing from the Jib Boom End

By Capt. H. H. Neligan

NEARLY every boy has done some fishing in his school days, even if it were only the "jacksharps" in the park ponds, which he would catch with a bit of cotton on a stick, and a worm. But I want to tell you of another kind of fishing in the ocean, where the real big fish live, so here is an old sailor's yarn for you.

You have all learned at school about the Trade Winds, how for 20 deg. of Latitude on each side of the Equator they are always blowing; those to the North blow from the North East, and those South of the Equator from the South East. Between these two winds there is an empty space, as it were, with no wind, or very little, and torrents of rain with black sky. This belt is called the Doldrums, and it is there where the edible deep water fish are to be found in great numbers at times. The sailors in the old sailing ships were very eager to catch them, to help out their scanty allowance of food.

Well, the writer was a boy in a small barque from Liverpool to Australia, which had run through the North East Trade Winds, and was now in the belt of calms, little wind, and rain. Everyone was eagerly looking for fish, but none could be seen jumping out of the water, and even from aloft, where they could be seen deeper, there were none.

There are three types of edible fish, albacore, benito and dolphin, and all live on the flying fish. When the latter fly out of the sea, the other big fish jump after them; so to catch the big fish an imitation of a flying fish is necessary. This was done by having a piece of white rag, or tin foil, round a one-inch hook, and flicking it on top of the water from the jib boom end. The big fish would see it jumping about on top of the sea, and thinking it was a flying fish, jump out of the water and grab the white rag and hook.

As a good sized fish will weigh up to 50 pounds, it takes some hauling to get him on board when hooked, especially as they are very powerful fish and do a great deal of fighting till landed on deck.

Well, one Sunday morning the sky was very black; the rain had ceased for a time, but still it was very hot (we were almost on the Equator), and in a calm. All morning the men had been trying to fish from the jib boom end. Not a fish appeared, and the sea was like a sheet of dull glass, with not a breath of air to move the ship.

One of the sailors, a man named Smith, an old whaler, had a favourite hook with three prongs. He had been at the boom end all morning trying to get a bite, but no fish rose to his very tempting bait. At dinner time he coiled his line up and left it on the end of the boom and went to his dinner.

Boy-like I thought this was my opportunity, so sliding out on the boom I got to the end and planted myself cross-legged there. I now uncoiled the line and let down the hook on to the (*Continued on page 220*)

New Meccano Model

Powerful Steam Roller

A STURDY steam roller driven by an Electric Motor is the subject of this month's new model. In building the model, which is shown in Figs. 1, 2 and 3, it is best to commence by assembling the engine unit. This is built up around an E20B Electric Motor, through the side-plate of which the rear wheel axle passes.

The flanges on the sides of the Motor are extended three holes on each side by $5\frac{1}{2}''$ Strips, which are joined at their forward ends by a $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flanged Plate 1 mounted on a $2\frac{1}{2}''$ Strip. The Bolts holding the $2\frac{1}{2}''$ Strip support also two $5\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips 2 that form the main uprights for the flywheel shaft bearings. These are 1" Triangular Plates, and the flywheel shaft is a $4\frac{1}{2}''$ Axle Rod. Strips 3 provide supports for the Double Angle Strips 2, and the fourth holes from their lower ends are used to attach vertical $2\frac{1}{2}''$ Strips 4. These $2\frac{1}{2}''$ Strips are bolted at the top to Flat Trunnions, which provide bearings for a $2\frac{1}{2}''$ Rod that forms the crankshaft and carries a Single Throw Eccentric.

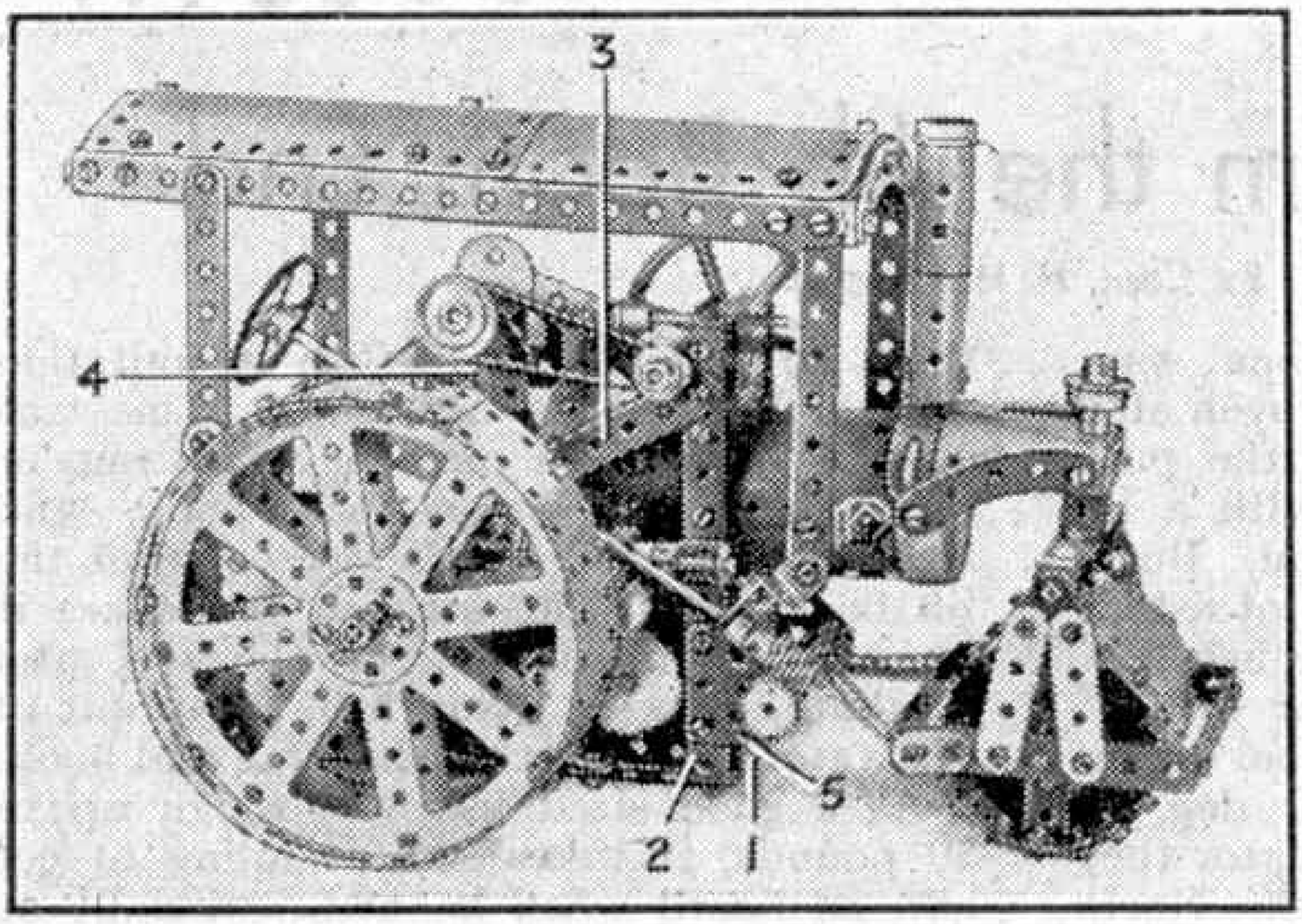


Fig. 1. A powerful steam road roller driven by an Electric Motor.

The Crankshaft is positioned by Collars and a 1" Pulley that takes the drive from a $\frac{1}{2}''$ Pulley on the flywheel shaft. Three Couplings on a 4" Rod form a barrel for the steering chain, and this arrangement is attached to the Double Angle Strips 2 by Flat Trunnions 5.

The spokes for the front roller are made from $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips bolted to Bush Wheels, and the centre part of the roller is formed round a Road Wheel. The rim consists of two $5\frac{1}{2}'' \times 1\frac{1}{2}''$ and two $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plates, bolted around the circumference of the Road Wheel and attached at the edges to the Double Angle Strips.

The axle for the roller is a 4" Rod, and the forks are made up from a $3\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip, two 1" Triangular Plates, four 2" Strips and a Double Bent Strip. These forks are attached to a framework consisting of two $3\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips and two $3\frac{1}{2}''$ Strips, which carries the front axle. The steering chain is a length of Sprocket Chain, which is attached to the roller framework by Fishplates.

Each of the rear rollers consists of three $5\frac{1}{2}'' \times 1\frac{1}{2}''$ and a $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plate bolted to the rims of two $5\frac{1}{2}''$ diam. Hub Discs, as shown in the illustration. A Bush Wheel is bolted to the centre of each Hub Disc to accommodate the rear axle.

The fore carriage is a $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plate, which is attached to a Boiler fitted with one End, by a Formed Slotted Strip. The edges of the Plate are folded, as shown and braced with $2\frac{1}{2}''$ Curved Strips. A bolt used to attach the Formed Slotted Strip and the Flexible Plate to the Boiler, holds in position also a Double Bracket and a $2\frac{1}{2}''$ Strip. This Double Bracket supports the chimney, which consists of two Sleeve Pieces held together by Chimney Adaptors, a $\frac{3}{4}''$ Flanged Wheel and $3\frac{1}{2}''$ Screwed Rod. A $3\frac{1}{2}''$ Rod held in position by a $\frac{3}{4}''$ Wheel and a Collar, passes through the Flexible Plate, the end of the $2\frac{1}{2}''$ Strip and the Double Bent Strip providing a pivot for the front roller assembly.

The Boiler is fixed in place by $\frac{1}{2}''$ Bolts attached to the top of the Flanged Plate 1, and also to the Double Angle Strips 2 on each side of the model. The coal bunker has a $3\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate 7 for its base, two $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flanged Plates 6 forming the sides and another

$3\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate 8 making up the back. The Plate 8 is attached to the sides by a $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip. A $4\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip bolted to

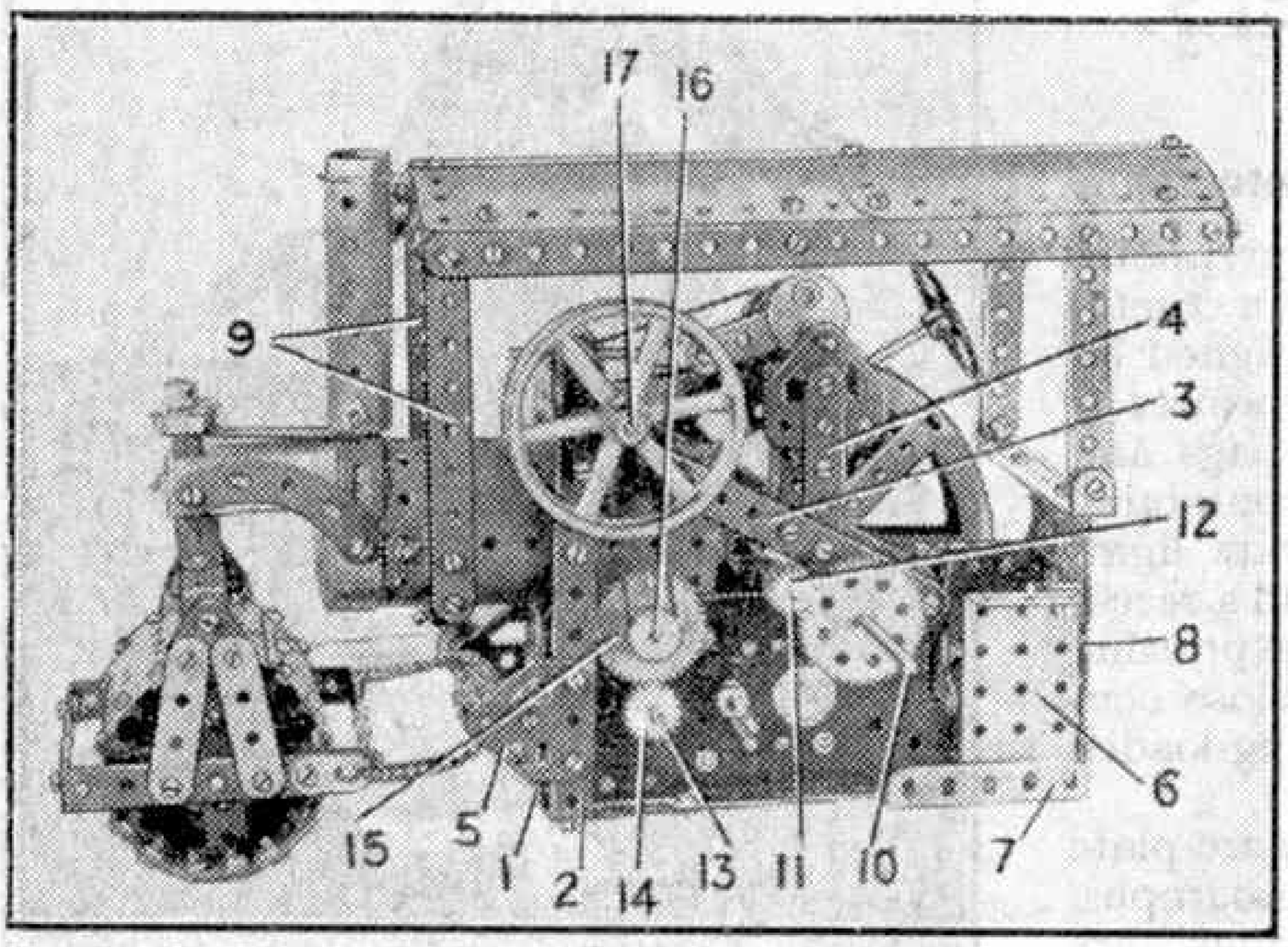


Fig. 2. In this view of the steam roller the left-hand road wheel is removed to reveal the gearing.

the top of the Plate 8 supports the rear end of the canopy, which is attached to $3\frac{1}{2}''$ Strips.

The front supports for the canopy are $4\frac{1}{2}''$ Strips 9, and these are joined to the sides of the Boiler by Reversed Angle Brackets attached by means of a $3\frac{1}{2}''$ Screwed Rod. This Rod passes through the fourth holes from the rear end of the Boiler, and the Reversed Angle Brackets are spaced by nuts and Washers. An 8" Rod 10 forms the rear axle, and the drive is taken to a 57-teeth Gear mounted on it by means of a $\frac{1}{2}''$ Pinion 12, which is held on a 4" Rod 11 journalled in Fishplates.

A $\frac{3}{4}''$ Pinion 20, mounted on the driving shaft of the Motor, takes the drive to a 50-teeth Gear 19 on a $3\frac{1}{2}''$ Rod 13. The other end of this Rod carries another $\frac{3}{4}''$ Pinion 14 that meshes with a 50-teeth Gear 15 on a $3\frac{1}{2}''$ Rod 16. The $\frac{1}{2}''$ Pulley also is locked on the Rod 16, and this takes the drive to the Flywheel. The other end of Rod 16 holds a Worm in mesh with a third $\frac{3}{4}''$ Pinion on a 5" Rod 18. This Rod is supported by a $1'' \times \frac{1}{2}''$ Reversed Angle Bracket and a Double Bracket as shown. A $\frac{7}{8}''$ diam. Bevel Wheel on Rod 18 takes the drive to a similar Bevel on the other end of the Rod 11.

An 8" Axle Rod forms the steering column and its upper part is pivoted in a Threaded Coupling attached to the Flat Trunnion by a $\frac{3}{4}''$ Bolt spaced with two Collars. The lower end of the steering column is held in a Fishplate attached to one of the $4\frac{1}{2}''$ Strips 9 by a Corner Angle Bracket. A Worm on the end of the steering column meshes with a $\frac{3}{4}''$ Pinion on the chain barrel, thus providing the steering mechanism.

The canopy is made up from four $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plates, attached to a framework made from two $12\frac{1}{2}''$ Strips and four $2\frac{1}{2}''$ Curved Strips. Four Angle Brackets and Obtuse Angle Brackets are used for this purpose.

Parts required for model Steam Roller: 2 of No. 1a; 4 of No. 2; 2 of No. 2a; 4 of No. 3; 2 of No. 4; 3 of No. 5; 4 of No. 6; 6 of No. 10; 3 of No. 11; 10 of No. 12; 1 of No. 12b; 5 of No. 12c; 2 of No. 13a; 2 of No. 15a; 1 of No. 15b; 3 of No. 16; 2 of No. 16a; 1 of No. 16b; 1 of No. 17; 2 of No. 20b; 1 of No. 22; 2 of No. 23a; 6 of No. 24; 4 of No. 25; 1 of No. 26; 2 of No. 27; 1 of No. 27a; 2 of No. 30; 2 of No. 32; 210 of No. 37; 20 of No. 37a; 45 of No. 38; 1 of No. 45; 2 of No. 48; 6 of No. 48a; 3 of No. 48b; 1 of No. 48c; 2 of No. 48d; 3 of No. 51; 2 of No. 53; 16 of No. 59; 3 of No. 63; 1 of No. 63c; 4 of No. 77; 2 of No. 80c; 6 of No. 90; 1 of No. 94; 3 of No. 111a; 4 of No. 111c; 4 of No. 118; 2 of No. 125; 4 of No. 126a; 1 of No. 132; 1 of No. 154b; 1 of No. 160; 1 of No. 162a; 1 of No. 162b; 2 of No. 163; 2 of No. 164; 1 of No. 166; 1 of No. 185; 2 of No. 186; 1 of No. 187; 2 of No. 188; 8 of No. 189; 1 of No. 190; 1 of No. 191; 5 of No. 192; 1 of No. 215. One E.20B Electric Motor.

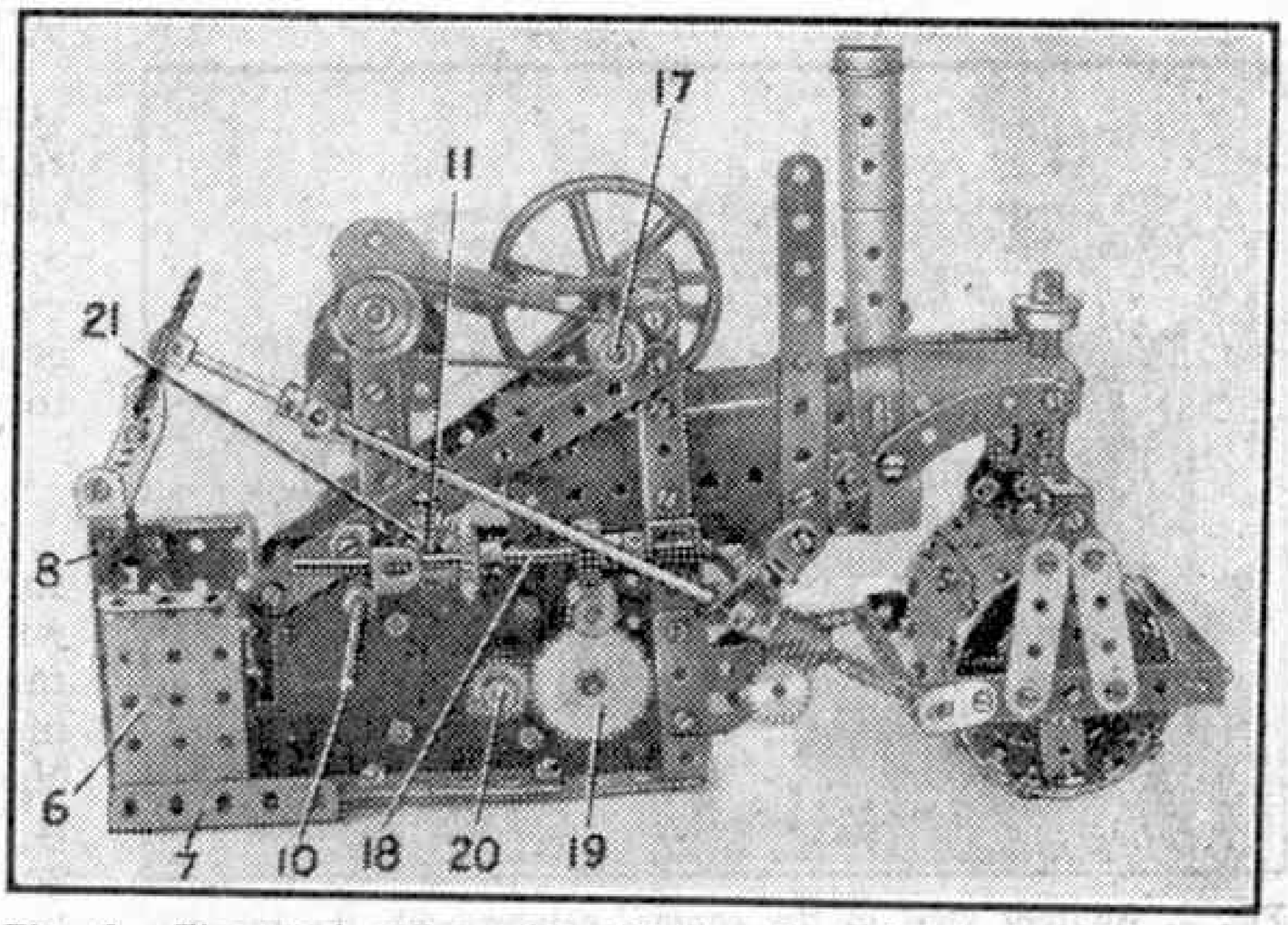


Fig. 3. The road roller with right-hand road wheel and canopy removed to show the interior arrangements.

Among the Model-Builders

By "Spanner"

A Useful Contact Printer for Photography

Meccano users who are amateur photographers may be interested in a useful contact printer that has been designed by Mr. L. P. Storey, Bristol. The printer is shown in Figs. 1 and 2 on this page and it consists essentially of a box containing an amber "safe light" and a white light. A piece of ground glass, inserted in a recess supports the negative, mask and printing paper, and the latter is held in close contact with the negative by a spring-loaded pressure-plate.

The construction of the pressure-plate mechanism is clear from the photographs. Four strong Compression Springs are carried on axles secured to four Cranks sunk into a piece of hard wood covered with cloth on one side, and these Rods are passed through the chassis members and are locked by Collars. The pressure plate is canted so that when the device is brought into action, that is, when the arm is pulled down from the "rest" position, the surface of the plate is flush with the glass bearing the negative, while the arm is still lifted a little. When pressure is exerted on the end of the arm the four Compression Springs come into operation and the plate presses the paper on the negative with considerable force.

The arm is held in this position by a locking device, in which Curved Strips ride gently over double Angle Girders secured to the front of the box until a nick "snaps" into position by the operation of a spring.

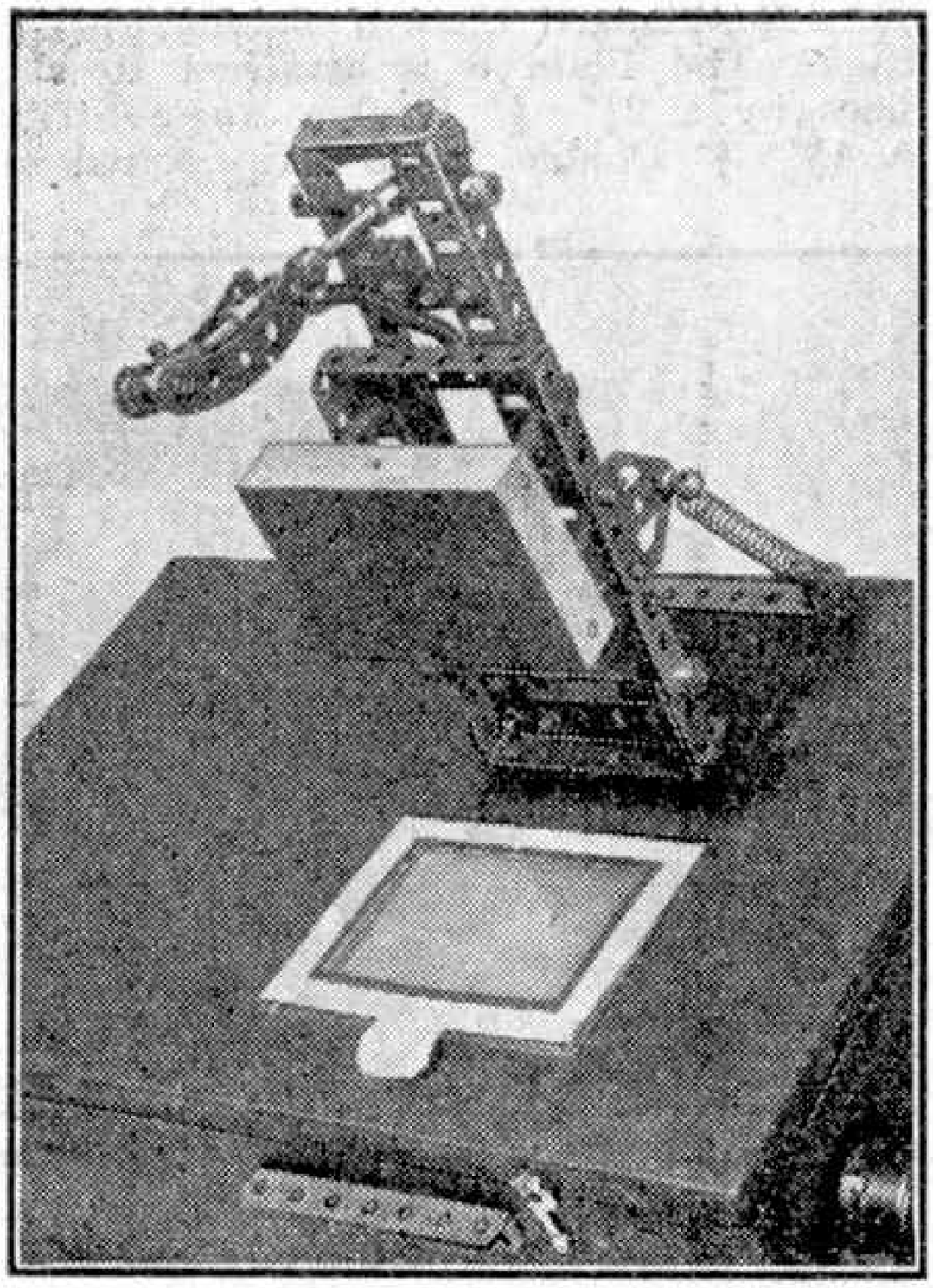


Fig. 1. The contact printer designed by Mr. L. P. Storey, Bristol. In the illustration the pressure pad is raised.

After exposure, the catch is released and the arm is returned to the vertical position. An Angle Bracket and a Bolt act as a stop for the locking device, which would otherwise foul the box and girders before coming into position.

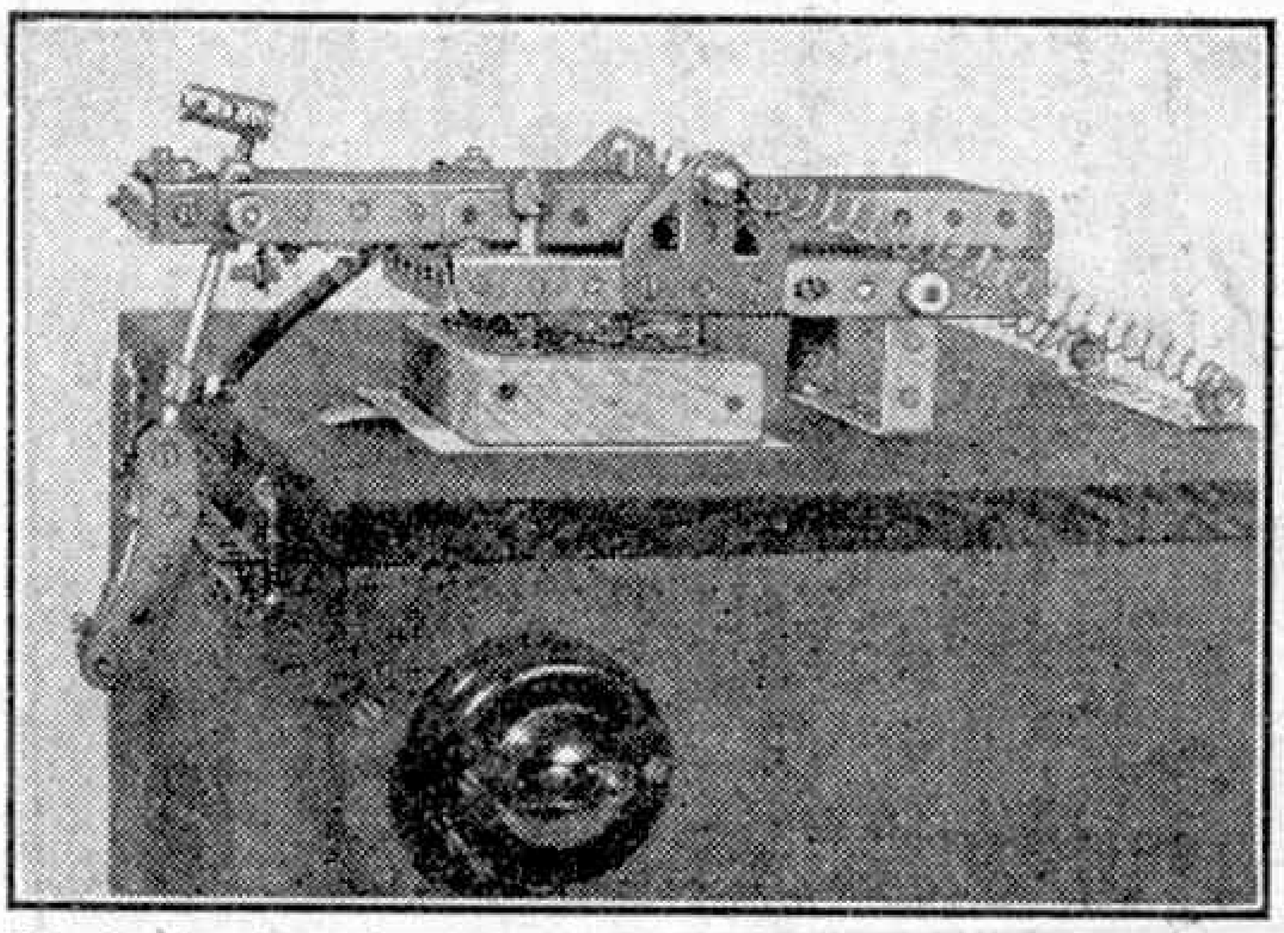


Fig. 2. Another view of the contact printer with the pressure pad in the printing position.

Any handy boy can make or adapt a wooden box and fix in it the battenholders to take the lamps, and can construct the operating mechanism without difficulty, but some skill in carpentry is necessary to cut out the recess to carry the ground glass.

A Friction-Type Differential

A. H. Hill, Southmead, Bristol, submitted a suggestion dealing with a friction-type differential mechanism that is suitable for incorporation in a model car chassis. Its special feature is that it eliminates the use of several gears, and it will therefore appeal to model-builders whose stock of gears is not very large and varied.

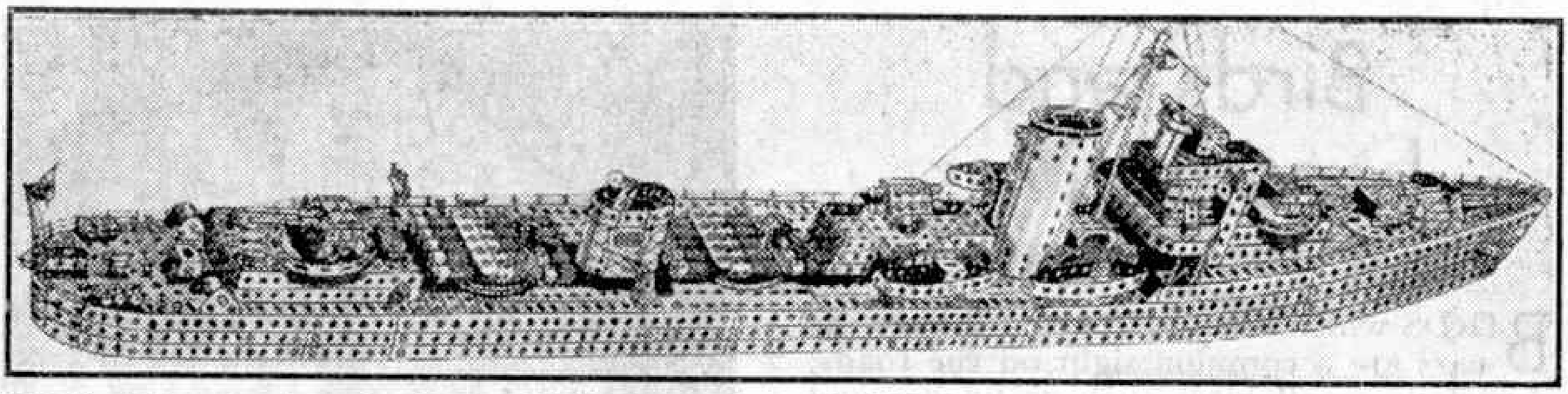


Fig. 3. A fine drawing of a fine model. Both are the work of P. D. Hancock, Edinburgh, who won first prize in a recent "M.M." Contest

A $1\frac{1}{2}$" Contrate and two Bush Wheels are locked on a $2\frac{1}{2}$" Rod that is journalled in two $2\frac{1}{2}$" × $\frac{1}{2}$" Double Angle Strips. The Angle Strips are bolted between the chassis cross-members. A Coupling on the Rod is separated from the Contrate by three Washers and is held in place by a Collar. The Coupling forms a bearing for a $\frac{1}{2}$" Pinion fixed on the driving shaft and meshed with the $1\frac{1}{2}$" Contrate.

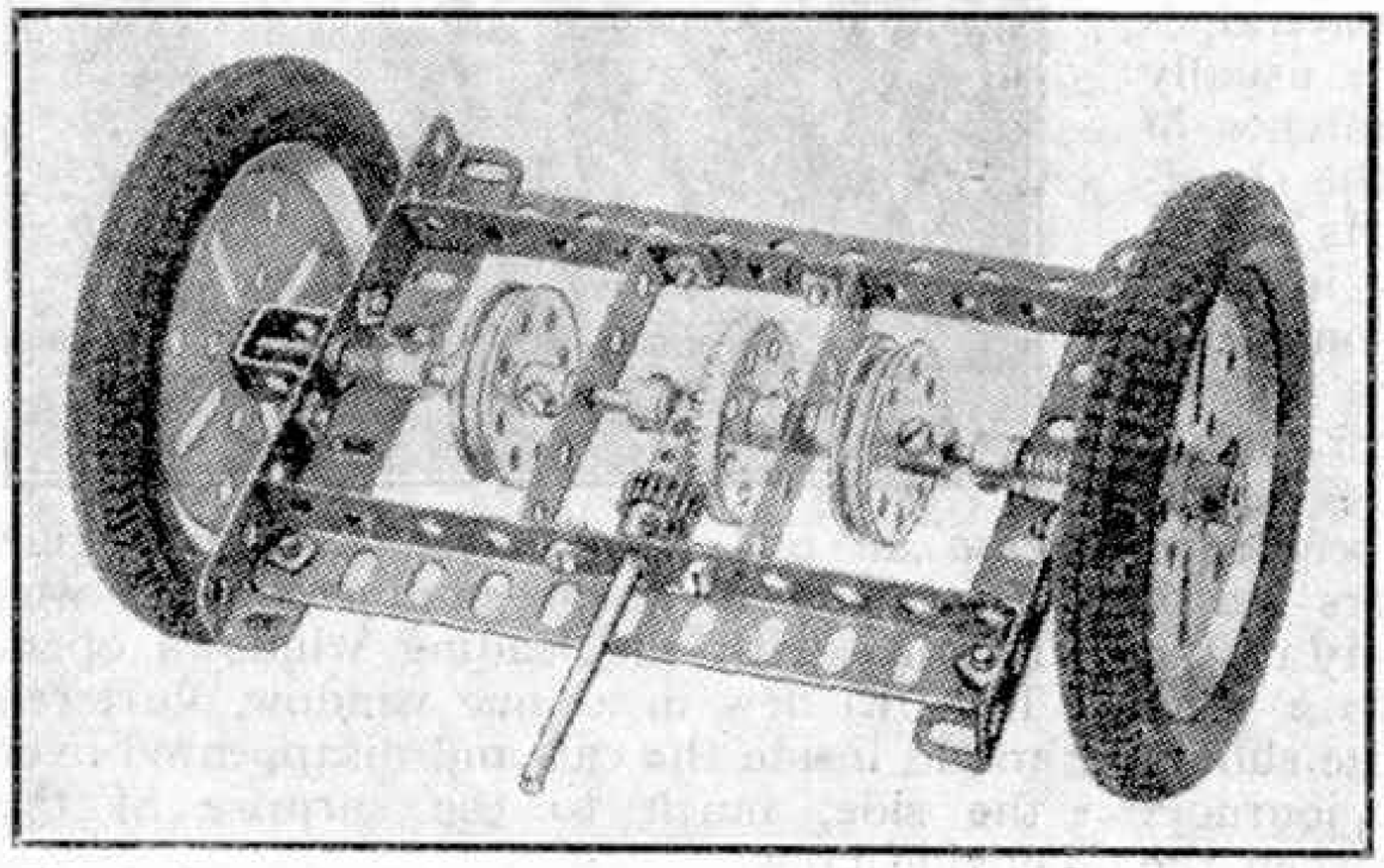


Fig. 4. A novel friction-type differential built by A. H. Hill, Bristol.

Each Road Wheel is locked to a $2\frac{1}{2}$" Rod that has a Bush Wheel and a 1" loose Pulley fitted with a Rubber Ring at its inner end. The Rubber Ring provides a friction drive between the Bush Wheels. A Compression Spring secured between the chassis member and a Collar forces the Bush Wheels against the Rubber Ring, thus forming a fairly positive drive. When the car is travelling around a corner however, the outer Road Wheel tends to move outward against the pressure of the Spring, thus releasing the drive on that side by separating the Bush Wheels. The mechanism is most suitable for light models.

A Fine Model Destroyer

P. D. Hancock, Edinburgh, is a frequent contributor to the *"M.M."* Competitions, and for his latest effort he was awarded First Prize in the "Winter" Competition. On this occasion he submitted a very fine model of H.M.S. *"Lively"* and illustrated his entry by means of the fine drawing reproduced on this page. Both the model itself and the drawing are excellent pieces of work and I wish to congratulate Hancock on his ability not only as a Meccano model-builder but also as an artist. The model is $4\frac{1}{2}$ ft. in length and about $3\frac{1}{2}$ in. in width. It mounts six 4.7 in. guns in twin turrets, two sets of multiple machine guns, multiple pom-poms, depth charge apparatus and ten torpedo tubes in two sets of five. Other accessories, such as search-lights, winches and small boats are also reproduced. The model is wired for electric lighting, the current being provided by batteries housed in the rear superstructure.

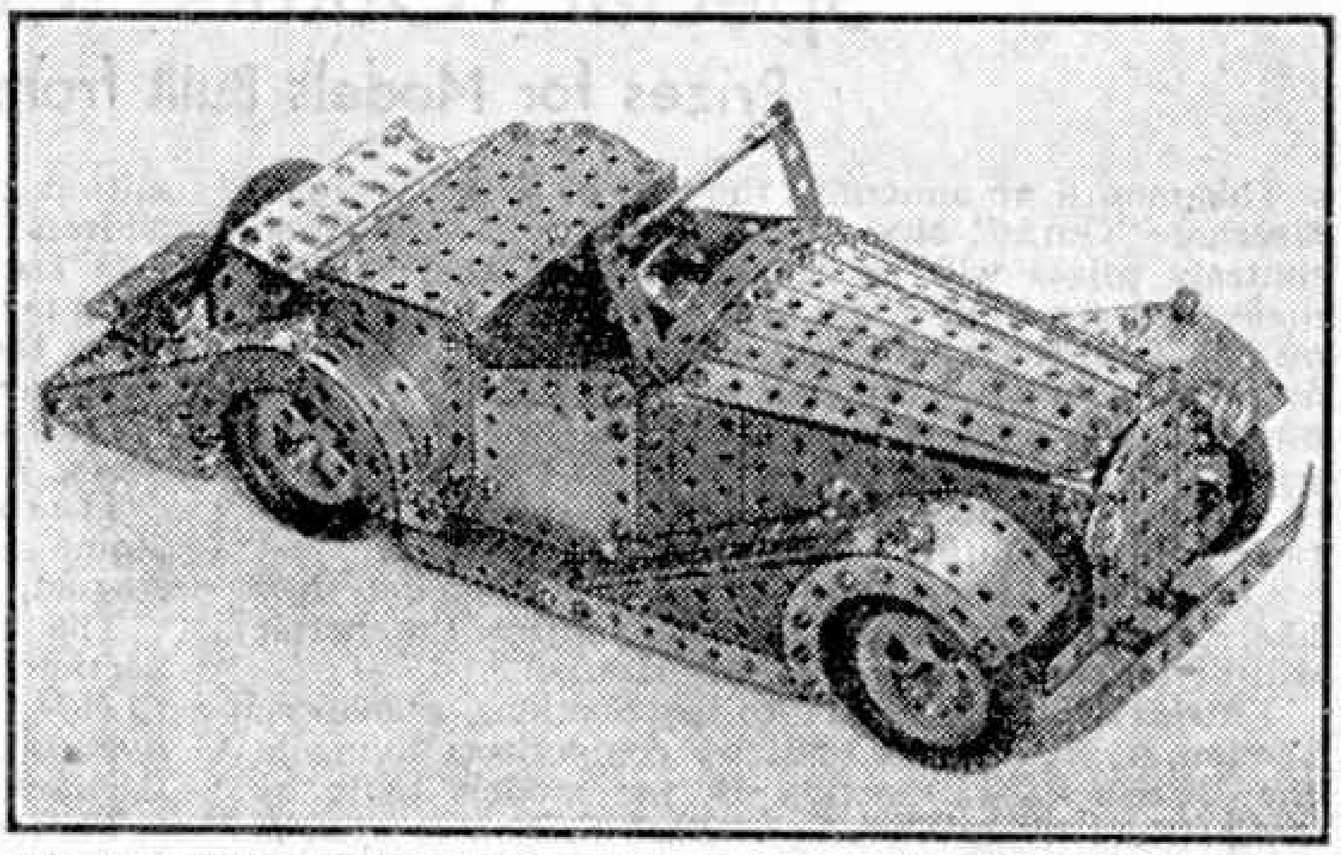


Fig. 5. This realistic two-seater is the work of David Hughes, Dursley, Glos.

Birds and Locomotives

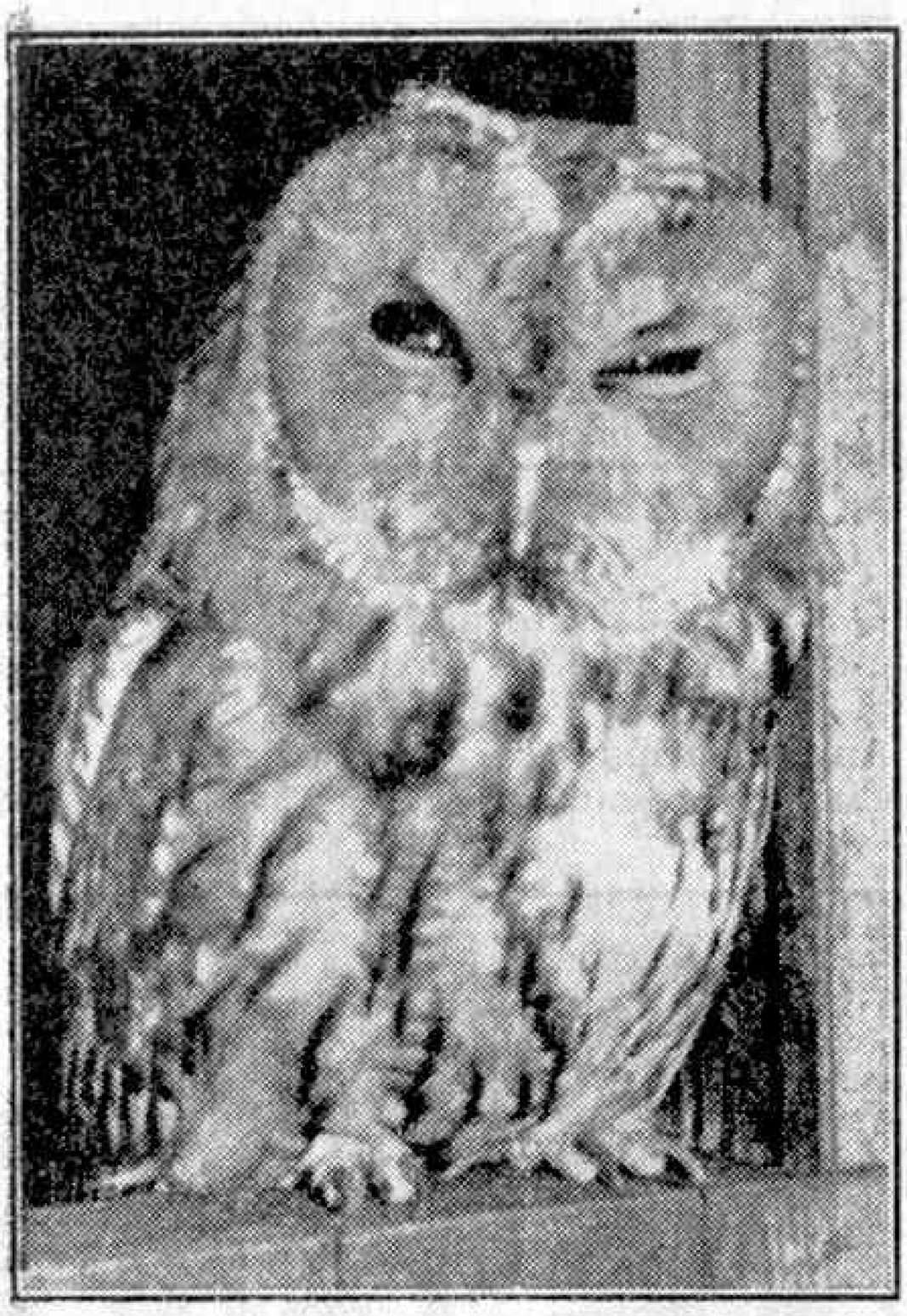
By "Shed Superintendent"

BIRDS which have been killed by passing cars are a common sight on the roads, especially small birds such as finches and thrushes. By contrast it is only occasionally that birds are struck by locomotives. One possible explanation for the difference may be that the hedges are set well back from railway lines, whereas on the roads the small birds are apt to fly out of the hedges straight into danger.

Engines do, from time to time, strike large birds such as pheasants, partridges and owls. The game birds have usually been encountered on certain stretches of line bordering on estates where the shooting is preserved or in wilder parts of the country. They have been struck in flight by the front of the engine, sometimes becoming lodged underneath the smoke-box or in the smoke deflector wings described in the March *"M.M."*

From the footplate little has been seen of the bird except a few feathers blown away by the wind, but if the body of the bird can be seen, there is usually a good deal of anxiety lest the lucky prize should fall off before the end of the journey! And if a waiting porter spots it when the engine draws slowly into the terminus, there is some competition to secure it.

The owls that have struck engines have usually done so at night, perhaps blinded by the glare from the fire. In one authentic



case an owl encountered a tank engine which, on a warm summer night, was running with the leading windows open. The owl flew in at one window, fluttered round inside the cab and disappeared over the side, much to the surprise of the engine crew.

Birds of all kinds have been known to build nests on engines. I hasten to add that the engines have been those standing awaiting the scrap heap and have provided some very comfortable nesting-boxes!

Special "Outfits" Competition

Prizes for Models Built from Outfit No. 1

This month we announce the first of a new series of Meccano "Outfit" Model-building Contests. In these contests prizes will be offered for the best models made entirely from a specified size of Outfit. *In this month's Contest models must be built from the parts contained in Outfit No. 1.* Readers who possess larger Outfits may of course enter, provided that they use only parts that are contained in the No. 1 Outfit. It is of course, not necessary to use all the parts contained in the Outfit.

Competitors may build any kind of model they like, and the more original the subject the better will be its chance of winning a prize.

Entries will be divided into two Sections, as follows: Section A, for models built by competitors living in the British Isles. Section B, for models built by competitors living Overseas. *Each Section is open to readers of all ages.*

Competitors must send either a good photograph or sketch of their models, and each illustration submitted must bear the competitor's age, name and address on the back. *Each competitor must enclose with his entry a complete list of the parts required to build the model*; failure to observe this condition will cause the entry to be disqualified.

Envelopes containing entries should be addressed: *"Meccano No. 1 Outfit Contest, Meccano Limited, Old Swan, Liverpool 13."*

The closing dates for this competition are as follows: Home Section, 30th June; Overseas Section, 30th August.

The following prizes will be awarded in each Section. First, Cheque for £2/2/–. Second, P.O. for £1/1/–. Third, P.O. for 10/6. There will be also five consolation awards of 5/– in each Section, and Certificates of Merit.

Photographs or drawings of unsuccessful models will be returned to the sender provided that a stamped addressed envelope of the necessary size is sent with the entry.

Club and Branch News

WITH THE SECRETARY

THE 500th INCORPORATED BRANCH

An interesting landmark in the story of the Hornby Railway Company is the appearance on this page of a report from the 500th incorporated Branch, the Dawson Primary Boys' School, Dagenham. Not all the 500 Branches that have been incorporated are now active. Many of them had to suspend operations in the war period, and have not yet been able to re-start. I hope that more of them will now get under way, and that other enthusiasts will do all they can to establish Branches in their own neighbourhoods, if no Branch already exists there, so that we can press on to the 1,000th established Branch.

FUN ON EXCURSIONS

I trust that by the time these notes appear the execrable weather that has so far distinguished 1947 will have become only a memory, and that bright and sunny days are in store for us. Visits, Excursions and Games Meetings will then be bright spots in the histories of the Clubs and Branches organising them. I should like to share in all the enjoyment these will bring, so I hope that Leaders and secretaries, and indeed individual members too, will write to tell me about them. I like to receive businesslike letters, giving me the facts of any meetings, indoor or outdoor, and indeed these are essential, but I am equally delighted to hear of any humorous incidents or other specially attractive features of visits and excursions, and to read members' opinions on everything that happens in Club life. These opinions are often marked with real humour and charged with shrewd comment that may lead to improvements in the programme. The more I read of them the better, as I can then make sure that all in the world-wide brotherhood of the Guild can derive benefit from them.

Photographs also should not be overlooked. In most Clubs there is at least one camera owner, and he will seize any opportunity that may come along to snap his fellow members in interesting or perhaps amusing scenes. I hope to see many photographs of this kind during the summer, and I shall be glad to reproduce them on this page if they are suitable.

RECENTLY INCORPORATED BRANCHES

498. HITCHIN—Mr. J. Young, 14, Russell Street, Luton, Beds.
499. DENBY DALE—Mr. P. E. Hopkinson, Barwood Terrace, Denby Dale, Nr. Huddersfield.
500. DAWSON PRIMARY BOYS' SCHOOL—Mr. L. A. Buckingham, Dawson Primary Boys' School, Ellerton Road, Dagenham.

PROPOSED BRANCHES

BURY ST. EDMUNDS—Mr. R. Giddings, 30, Well Street, Bury St. Edmunds, Suffolk.

BOURNEMOUTH—Mr. D. L. Diprose, 16, St. Winifred's Road, Bournemouth.

SHREWSBURY—Master B. Humphrey, 22, Upton Lane, Crowmoor, Shrewsbury.

KINGHAM—Mr. F. D. Brewin, Sheffield House, Kingham Hill, Kingham, Oxon.

CLUB NOTES

FINNART SCHOOL M.C.—Recent special events have included a Social Evening and Concert, Hobbies meetings and a Hat Night. Excellent models have been built on regular Model-building Evenings. Games Nights have been devoted chiefly to Table Tennis and Bagatelle. Club roll: 24. *Secretary:* K. Woods, 16, Patrick Street, Greenock.

MINEHEAD GRAMMAR SCHOOL M.C.—This newly-affiliated Club meets in a good hut that has been decorated and provided with benches, electric light and heating. Membership has grown satisfactorily. Members meet in groups on different days for Model-building, and the programme includes Competitions, and the building of original models by individuals, and of large Club models. Club roll: 17. *Secretary:* R. B. Watts, The Grammar School, Minehead.

Members of the Tynecastle School (Edinburgh) M.C. in their Club Room. W. Jeffrey, secretary, is 2nd from the right in the back row. The Club was affiliated in February 1929. Under the Leadership of Mr. W. C. Stephen it follows a widely varied programme of Model-building and other constructional pursuits, and a speciality has been made of the construction of flying model aircraft and their testing in pole flying.

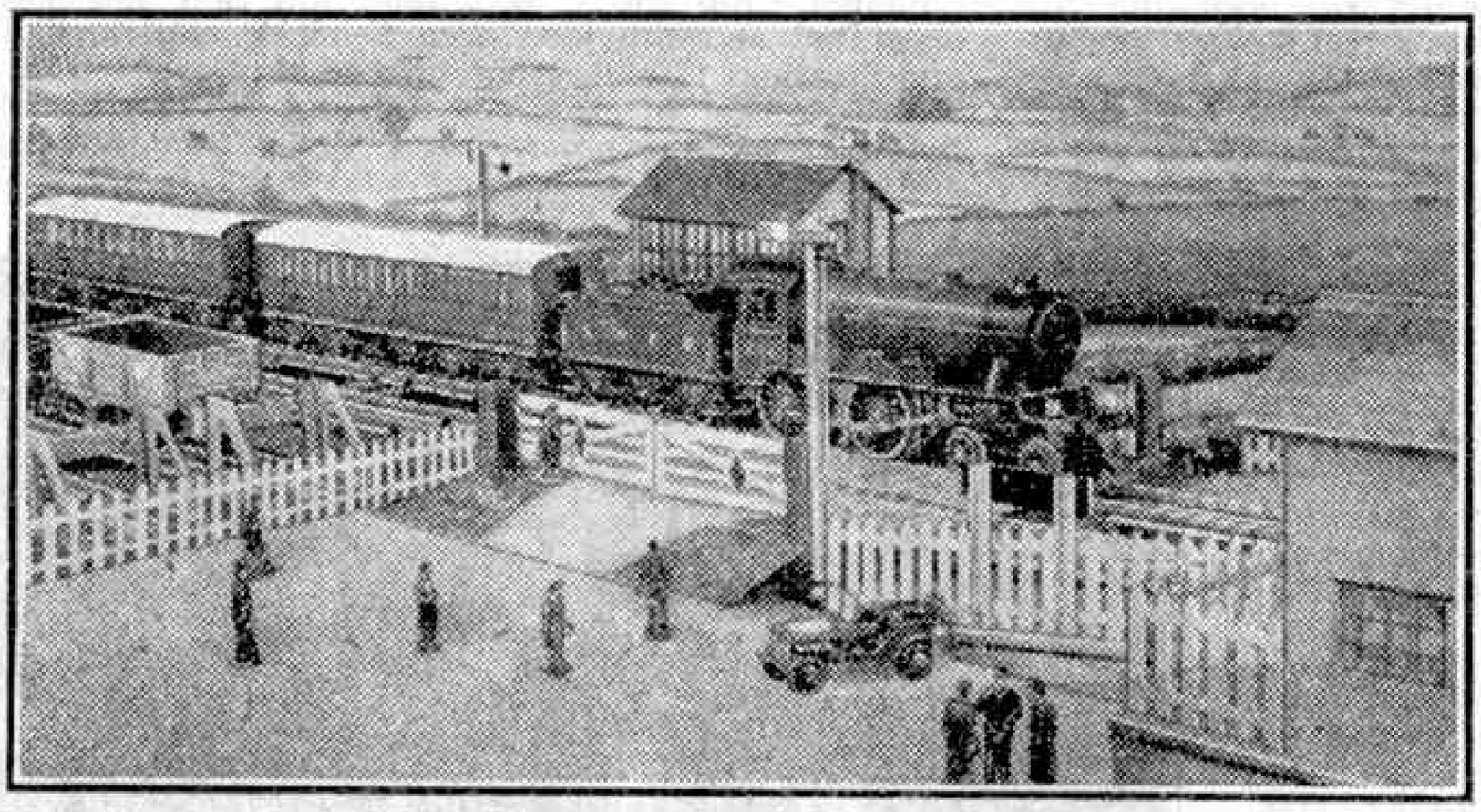
BRANCH NEWS

DAWSON PRIMARY BOYS' SCHOOL (DAGENHAM)—A splendid programme has been followed by this newly incorporated Branch. It includes Track Evenings and Lantern Lectures. A display was organised for the Barking Model Engineering Club Exhibition, and a demonstration of a steam locomotive of 2½ in. gauge was given by Mr. C. Wilkins. The track is now being extended. *Secretary:* J. Brooks, Dawson School, Ellerton Road, Dagenham, Essex.

WIDNES AND DISTRICT—The Branch now meets at its new headquarters, where an excellent Hornby Train Layout has been constructed. At the first track meeting this gave good running practice. Sections have been formed for Sports in connection with the Youth Hostels Movement. *Secretary:* R. Hindley, 146, Peelhouse Lane, Widnes.

Operating Oddments in Gauge 0

AN early running development on a Hornby layout is usually a test run to see how many vehicles the engine will pull. If we haven't enough of our own we borrow some from one of our friends and put together a good long train. Probably the vehicles are mixed—some on bogies, others four-wheeled, some with tinplate wheels and others with die-cast wheels. If these are put together in a haphazard fashion there may be trouble when the train takes a curve. Heavy vehicles at the tail of the train will drag on the lighter ones ahead, and on a long train may even pull them off the rails.



Over the crossing! A Hornby express headed by the L.N.E.R. "Bramham Moor" 4-4-0 runs through a wayside station.

It is advisable therefore to concentrate the heavier stock, such as those with bogies, and possibly die-cast wheels, immediately behind the engine. If this scheme is followed it ensures that all the items with similar running characteristics are together. Apart from the improved running on curves there will be then no tendency for the heavy vehicles placed here and there throughout the train to "nip" the lighter ones between them, and perhaps in certain cases even to force them off the rails when the train is checked and speed is reduced.

It sometimes happens that vehicles of different makes are included together in the same train. As there is invariably some difference in the types of couplings fitted, it is wise to keep all the "foreigners" together, so that there is only one possible point of disagreement between the different types of couplings. When the train is being hauled there is not usually any great difficulty; but as soon as the train has to be backed or shunted a difference in couplings can sometimes be a nuisance.

A golden rule in carrying out such movements is to do so at as low a speed as possible. It is wise in fact with a clockwork engine to wind it just sufficiently for each move to be made, so that the instruction often seen on real wagons, "*Shunt with care*," is carried out. Similar methods can be used with advantage when our engine is disposing of a passenger train after arrival at the end of its run. Apart from the better running obtained, the realistic effect of the operation will be much more satisfactory.

In any elaborate shunting operation, where a train may have to take several reverse curves in passing from one line to another, it is wise to keep the train short, and as far as possible of the same type of vehicle.

Care is necessary with a corridor train in managing the miniature corridor connections. The couplings should be engaged first, then the connections fitted in place. The reverse order should be followed when a train is being separated into its component vehicles. These fittings add a lot to the realism of a miniature express, and to complete their effect the corresponding end plates should always be provided at each end of a corridor train. The end opening visible when they have been forgotten or lost looks untidy.

An obvious lineside precaution suggested by the photograph is to see that at any level crossings the gates are always secured by their locking pins. A swinging crossing gate, if unnoticed, can cause quite an unfortunate mishap, with the possibility of damage to the engine and rolling stock. Also, miniature figures should not be placed too near the edge of the platforms. They may get knocked on to the track, where they can cause derailments. It is undignified for an engine to be derailed by one of these tough die-cast people!

Hornby Train Running on Simple Layouts

AFTER the first excitement of running a new Hornby train the owner gradually becomes more used to handling the engine and rolling stock, and he begins to think out different ways of making his train running more interesting. In other words, he begins really to "play" with his engine and its train.

Even with the simplest possible layout, such as the circle or oval of rails included in a Train Set, there is plenty of fun to be had. A little imagination, which is necessary even on the most perfect and complete layout, will turn a shallow box or its lid into a station. If the railway is on the floor a chair or some other item of furniture may become a tunnel, a few books can provide an overbridge, and so on.

With a passenger train, we can start up from the station and make any number of circuits of the track, making stops now and again until the journey is over. The trip can be based on any stretch of real railway with which we are familiar, and stops will correspond with actual stations. By altering the stops made on different trips we can vary the train service in quite an interesting manner.

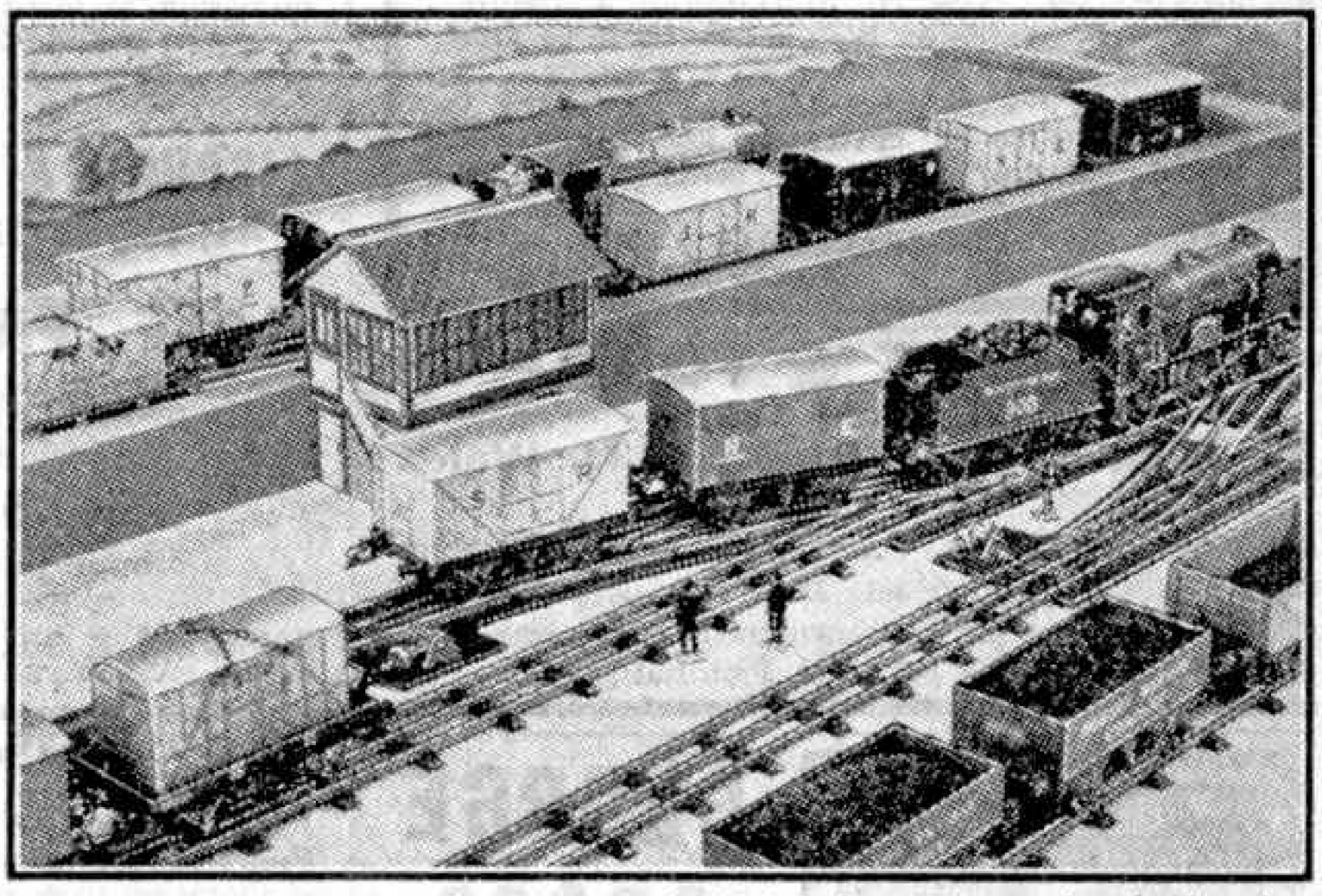
With a reversing engine, the "return trip" will present no difficulty. To get the engine to the other end of the train, on arrival, it can simply be uncoupled and run round the track until it reaches the opposite end of the coaches again.

With a goods train things are rather different. The shunting of wagons at different points along the line, either to add them to the train or to leave them in local yards, cannot very well be reproduced on a plain track. So our goods train will have to run complete to its supposed destination.

To make miniature goods train running more realistic most model railway owners follow the practice of making up loads for open wagons and other vehicles. For a "rough" load sand or small stones are suitable materials. The best way to deal with such loads in miniature is to make a false bottom of thin card for a wagon. This will resemble the lid of a box, made to fit inside the wagon body and of such a height that its top comes just below the upper edge of the wagon sides. The top surface should be painted black or some other dark shade and then covered with glue or some similar adhesive. We can now sprinkle on the sand or other material and allow the glue to set. When this is hard, any excess of the load is shaken off and the complete "load" is ready for placing in the wagon body. It is not a bad plan to make several different loads as we can then vary our traffic.

Timber and lumber traffic are easily represented in miniature. Lengths of wood sawn up make good timber loads, while a few sticks, not too irregular, cut from a bush or branch do well for miniature tree trunks and look quite realistic.

Apart from such loads there are plenty of things that can be used or adapted. Miniature cases can be shaped from wood or built of cardboard, and if necessary painted. These look well in open wagons or placed on the platform. Cotton bobbins, match boxes, small cartons and little tins are among the items that can be collected in any household to load on our goods trains. The arrangement of loads in this way and their handling can provide plenty of fun, quite apart from the actual running of the train.



Roadside work by a Hornby through freight train. The engine is drawing two vans out from the siding for attachment to the train.

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For other Stamp Advertisements see also pages 218 and xii.

Stamp Collecting

South Africa's Union Issues

By F. Riley, B.Sc.

THE first stamp of united South Africa, which appeared in 1910, marked the union by the inclusion in the design of four shields, one in each corner, symbolising respectively the Cape, Natal, the Transvaal and the Orange Free State, the four constituents. It was a deep blue stamp, 2½d. in value, with a portrait of King George V in the centre. Other portrait stamps followed in subsequent years, and then in 1926 came three stamps that are familiar to all collectors, showing respectively a springbok's head, Van Riebeeck's ship and the orange tree that had previously been characteristic of the Orange Free State issues. Jan Van Riebeeck, whose ship is illustrated on one of these stamps, was the leader of the first Dutch settlers, who landed in 1652. The springbok has been associated with the Union's stamps for many years in the watermark.

These stamps were pictorials, but the great days of South African pictorial issues began in 1927, when a series of seven designs appeared in a new set. The subjects ranged widely over the Union, including the Union Buildings at Pretoria, on the 2d. value, Cape Town and Table Bay on the 10/- value, and a Kaffir kraal on the 4d. The animal life of the country was represented on the 1/- value by gnus, and the 2/6 and 5/- values featured ox wagons, the one inspanned and the other outspanned. The 3d. value carried a picture of Groote Schuur. This is a fine old Dutch house on the slopes of Table Mountain in which lived Cecil Rhodes, the great South African administrator whose name was given to Rhodesia, the vast country to the north of the union that he brought under British rule. On his death, Rhodes left the house as an official residence for the prime ministers of the Union.

The great migration northward of the Dutch farmers rather more than 100 years ago has given rise to pictorials of special interest and importance. This was an outstanding event in every way. It began with dissatisfaction on the part of the Dutch living in Cape Colony with the proceedings of the British Government. In search of independence they began to travel northwards, and by 1836 some thousands had crossed the Vaal river into what is now the Transvaal. That country was then in the hands of Moselekatze, a refugee Zulu chief, whose followers massacred some of the emigrant bands. He was attacked by the Boers in 1837 and utterly defeated, with the result that he withdrew to the north and left the country in the hands of the Voortrekkers.

These hardy adventurers still had many dangers to face, however, for on their eastern flank were the fierce Zulus, who under their chief Dingaan held most of Natal. These hardy warriors routed and exterminated a division of the Voortrekkers under Pete Retief who had crossed the mountains into Natal, and this was followed soon after by the slaughter of another Boer force. The situation became almost desperate, but salvation came when Andries Pretorius first checked Dingaan and then inflicted on him a crushing defeat, the guns of the Afrikanders proving more than a match for Zulu assegais. Dingaan soon afterwards was murdered and his successor proved more peaceful.

The great trek northward was first commemorated on South African stamps in an issue of four stamps in 1933. Two of these show a Voortrekker and a Voortrekker woman. A third pictures a scene characteristic of the great trek, and the fourth illustrates a Voortrekker church.

The stamps of this issue bore a surcharge for the benefit of a Voortrekker memorial, and in 1938, regarded as the centenary year of the movement, it was followed by another series, also bearing surcharges. The designs show a Voortrekker ploughing, a wagon crossing the Drakensberg, the mountains separating Natal from the Orange Free State, the signing of a treaty with the Zulus, and a proposed memorial to Jan Retief.

At the same time a special Voortrekker commemoration issue of two stamps also appeared. Of these the 1d. stamp shows a splintered Voortrekker's wagon wheel, with the skid in action as the wagon descends a mountain. The design is intended to symbolise the hardships that the Voortrekkers encountered and overcame. The borders of the stamp show chimney stacks and water coolers of the kind seen at electric power stations to represent industry and power, modern developments in the Union. The 1½d. stamp shows a Voortrekker family gazing at the distant horizon, across a river and mountains of historic importance in the Voortrekker movement. A double rainbow symbolises the happier future in store.

An interesting feature of South African history is the association with the early Dutch settlers of Huguenots, Protestant refugees from France, and in 1939 a special issue commemorated the 250th anniversary of the landing of these pioneers. There are three stamps in the series, each surcharged for the benefit of the Huguenot Commemoration Fund. One of these pictures a Huguenot dwelling in a valley of the Drakenstein mountains.

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GREAT BRITAIN S.G. SIMPLIFIED CATALOGUE NUMBERS

Usual Cancellations

1d. ea.: 15, 54, 71, 85, 86, 87, 106-116, 131, 132, 133, 136-142, 151, 152, 153, 155-164, 177, 179, D2, D5. **2d. ea.:** 9, 50, 72, 75, 76, 88, 90, 147, 148, 149, 165, 169, 173, 174, 176, D1, D4, D6, O12, O13, O41. **3d. ea.:** 73, 91, 92, 95, 104, 105, 143, 166, 167, 168, D7, D8, O2, O56. **4d. ea.:** 8, 49, 77, 80, 146, O22. **6d. ea.:** 3, 14, 17, 48, 74, 79, 89, 93, 119, 122, 154, 175, 180, D9, O27. **9d. ea.:** 38, 94, 99, 117, 120, 127. **1/– ea.:** 64, 78, 81, 96, 128, 144, 178, D9. **1/6 ea.:** 28, 83, 97, 98, 118, 121, 123, 134, 145, 150, O1, O18. **2/6 ea.:** 37, 42, 51, 62, 65, 82, 171, 172A, O11, O17, O43. **3/– ea.:** 11, 23, 24, 44, 124, 170, O11, O69. **3/6 ea.:** 19, 35, 39, 100, D3, O14. **4/– ea.:** 4, 10, 12, 16, 25, 53, 63, 84, 125. **5/– ea.:** 20, 46, 52, 68, 129, O37, **6/– ea.:** 56, 57, 101, 172. Gt. Britain, Reliant Packets, all different, 45 for 2/6, 65 for 5/–, 90 for 10/–, 120 for 20/–, 145 for £2, 200 for £5.

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Postage extra. **Bulletin** 1/– per annum. Price List of **Crown Colony Peace Sets** on request.

IVAN GRAY & CO., Mount Avenue, DUNDALK, EIRE

For other Stamp Advertisements see also pages 216 and xii.

Stamp Gossip

and Notes on New Issues

By F. E. Metcalfe

THEY say it is an ill wind that blows nobody any good, and we are reminded of this by a paragraph we read in a stamp magazine, in which the manager of a large firm stated that owing to the fuel crisis they were much busier than usual! The stamp trade in general are finding trade very good, but one would have thought that the "Royal Visit" stamps for South Africa, etc., had a deal to do with the briskness, for these six sets have been very popular, not only in Great Britain, but also in the rest of the Empire, and even in the United States of America.

This country is busy preparing for its stamp exhibition in New York, which is to commemorate the centenary of the first U.S.A. postage stamps. Of course this exhibition will be the greatest ever, more or less, and the postal authorities are preparing special stamps; a miniature sheet and the air letters, something we have had for years, are being placed on sale at the exhibition, for the first time in America. H.M. King George VI is sending a portion of his stupendous Colonial collection, and other British collectors will be represented. Incidentally, the exhibition extended a special invitation to British collectors, owing to the fact that the war prevented them from spreading themselves out, as they would have liked, when our own postal centenary was celebrated six years ago.

We are illustrating a copy of the Canada "Bell" commemorative stamp mentioned last month. It's a handsome production, but the artistic may find the design not entirely satisfactory; in fact it is as ornate as a piece of Victorian furniture, and as formless.

Newfoundland has brought out a new stamp to commemorate the coming of age of Princess Elizabeth. The 4c. stamp, which has hitherto depicted the Princess when she was a small child, has been brought up-to-date. We will illustrate the new stamp next month.

For some time there have been rumours that Norfolk Island, away in the South Pacific, is to have its own set of stamps, and we now have confirmation that this is so. The set will have a total face value of about 6/–, and will run from ½d. to 2/–. The stamps were to have been placed on sale in June, but there has been some delay.

Norfolk Island is under the control of Australia and at present Australian stamps are in use there. From this it would appear that the stamps may be printed in Melbourne. If this proves to be the case, one can only hope that they won't be the wishy-washy productions that have been produced in the past for other Australian dependencies.

As many collectors already know, Malaya, with its numerous sets of stamps for Perak, Pahang, etc., was to be formed into one union, with a single set of stamps for the peninsula and another for Singapore. In the meanwhile Malayan pre-war stamps, overprinted "BMA," British Military Administration, were to be used. Actually these stamps are still on sale, though it was expected in the first place that they would be off sale months ago. Now comes news that the old federated stamps are to be preserved, and the provinces will again resume their own stamp emissions. This will not be particularly popular with collectors, for in the past there were far too many stamps from Malaya.

The French African colonies have recently brought out some very attractive stamps, and we are illustrating one with a striking design from French Equatorial Africa; the forest scene is exceedingly well done. So is the printing of the stamp, which is more than can be said about the Argentine stamp which we are also showing. The design of this stamp is very fine, but unlike the French line-engraved effort, the Argentine is crudely printed in lithography. It is hard to understand the Argentina Postal Authorities. One would have thought that they would want something much better than they have been giving their public for so long.

A great event for British collectors is the publication of Gibbons Part I. As these words are being written there is no definite news as to when the latest edition will be available. Actually it went to press in the autumn of last year, but many obstacles prevented its appearance. It is of course accepted as a standard, except for KG VI issues. Prices for these latter stamps change too quickly for any catalogue to be up to date. No doubt, as usual, the catalogue when it does come out will be the best of its kind, but don't expect too much, in view of the long time the volume has been in the press.

Our last illustration is of a stamp, part of a set of four which has been emitted by Egypt, to commemorate the Arts Exhibition recently held in Cairo. The set proved a best seller.

Our own British stamps continue to bring good prices and two stamps to watch are the 2/6 brown and 10/– dark blue of the present reign. A sheet of the latter, 40 stamps, recently brought £42 in auction, and it is said that the buyer would have paid several pounds more, if necessary. Even used these two stamps are quite good, so if you can afford mint, buy them now, or used, if mint price is more than you want to pay. But be sure that the used are really fine copies, with light cancellations. There are plenty of poor quality about, but these will never be worth more than they are to-day.

Safety in the Air—(*Continued from page 192*)

guided over Germany by operators in these islands, who were even able to direct by radar the bomb-dropping with uncanny accuracy hundreds of miles from the target.

Britain is once again giving the lead to Europe in improving international radio facilities for civil aircraft, and the three British airline Corporations have formed a non profit-making concern called International Aeradio to supply, operate and maintain radio and navigational aids for the benefit of all airline operators throughout the world. There is little doubt that the apparatus provided by International Aeradio will play a big part in guiding air liners through stormy skies to the safety of an airport. In America, experiments have been carried even further, and aircraft have been taken off by radio control, flown hundreds of miles with no crew aboard and then landed safely at another airfield. The possibilities of such radio control are obvious—the danger of human error is eliminated and bad weather can present few problems. It offers an entirely new concept of safe flying.

That then is the position to-day, with designers, scientists, radio engineers, airline operators and even politicians striving to make flying safer for the man-in-the-street and the woman-in-the-home—for you! It may take years before their united efforts make flying as safe as we all want it to be. But that day will come as certainly as the motor car replaced the stage coach.

A Sailor Remembers—(*Continued from page 207*)

water. Just then there was a slight puff of wind, and our vessel moved ahead a little dragging the bait as I flicked it on the water. All at once there was a big jerk on the line, and I hung on and started to haul in.

I could see that there was a great albacore hooked on, and he was fighting and shaking as hard as he possibly could. I was very frightened that I should lose him, but more frightened that he would take Smith's favourite hook with him. Slowly I hauled him up a matter of about 20 feet, foot by foot, but I never called out to anyone for help, as I was too frightened of the fun that would be made of me if I lost the fish.

At last I got the monster up, and with one supreme effort, got him on the jib topsail which was down and lying on the boom. After wrapping the edge of the sail over the fish I laid across, and yelled for help!

The men came running out to see what was the matter and found me on the boom end, shaking and quivering with the fighting of the big fish underneath me. They soon had a sack out and the fish dropped into it and, of course, it must be weighed at once, and showed 45 pounds on the cook's rusty balance.

All hands had a good feed that day of fresh fish and it certainly tasted good. What was left was put into salt, but really there was no need to do so as plenty more fish were caught afterwards. But I was the real hero for starting the ball, and Smith was satisfied that his precious hook was undamaged.

Watching Water Beetles—(*Continued from page 195*)

Often there is an appreciable layer of air beneath. Even when the water appears to touch the ice everywhere, bubbles are usually present, and I have seen beetles replenishing their air supply from them in the depth of winter.

This reminds me of a beetle family called the *Donaciadae* that inhabit lakes where water lilies grow. As larvæ they burrow into the mud and are apparently too lazy to come to the surface for air. Instead they obtain their supplies by puncturing the roots of the plants and robbing them of the air they contain. Some of the species in this family have a variegated longitudinal metallic stripe on each wing-case, and a few are exceedingly variable in colour. You can see specimens in all shades from dull black to light gold, the intermediate forms exhibiting beautiful shades of dark and light blue, green, copper, purple, and even red. If you come upon a colony of these Water Lily beetles, as I like to call them, there is nothing more lovely than to see numbers of them clustered together like living gems basking in the sun on the broad leaf of a water lily plant.

Another interesting thing about water beetles is that they can fly quite well, for they possess neatly folded wings beneath their hard shell-like wing cases. On bright and warm days in high summer you may often see them resting on the mud near the water's edge, waiting to take off for a flight. Sometimes they climb to the tops of old rush stems sticking a few inches above the water. They are sharp-sighted, however, and will quickly scramble or fall back into the water if you try and pick them up, or even approach too close to them. Some species prefer to fly only by night, and if you ever find a large black beetle lying dead on your garden frame you'll know it is one of these kinds that mistook the sheets of glass for a sheet of water in the moonlight, and met its death as it dived into what it thought was a safe haven of water! There are tragedies even in the flights of water beetles.

British Locomotives of the Near Future—(*Continued from page 206*)

ease and efficiency she took this train on to Bristol at an average speed of 55 m.p.h.

The Great Western has equipped several engines of the "Castle" class for oil-burning, and with one of these, No. 5091 "*Cleeve Abbey*," I had an interesting journey when travelling as a passenger on the 1.15 p.m. express from Paddington to Bath. The load was moderately heavy, 10 coaches weighing 365 tons behind the tender. This train is booked to cover the 106.9 miles non-stop in 114 minutes, an average of 56¼ m.p.h., but owing to the present limitation of speed to a maximum of 75 m.p.h. the downhill section from Swindon to Bath, 29.6 miles, is allowed 31 minutes, whereas the very gradual rise from Didcot to Swindon, 24.2 miles, is booked in 25 minutes. The engine was worked very steadily. There was never the slightest trace of black smoke—just a grey effusion at times, and she ran very swiftly until the driver had to restrain her from exceeding 75 m.p.h. Unfortunately a land-slip in one of the cuttings near Chippenham necessitated a slack right down to walking pace, so that we could not keep strict time. I learned with great interest from an engineer who was riding on the footplate that she was doing "exceptionally well."

It remains to be seen whether "*Cleeve Abbey*" and the other oil burners are truly the shape of things to come, or whether they are merely an expedient to help us through our present difficulties. Whatever may be in store, we can rest assured that for all students of locomotive design the next few years will be full of interest.

L.N.E.R. FILMS AND SLIDES

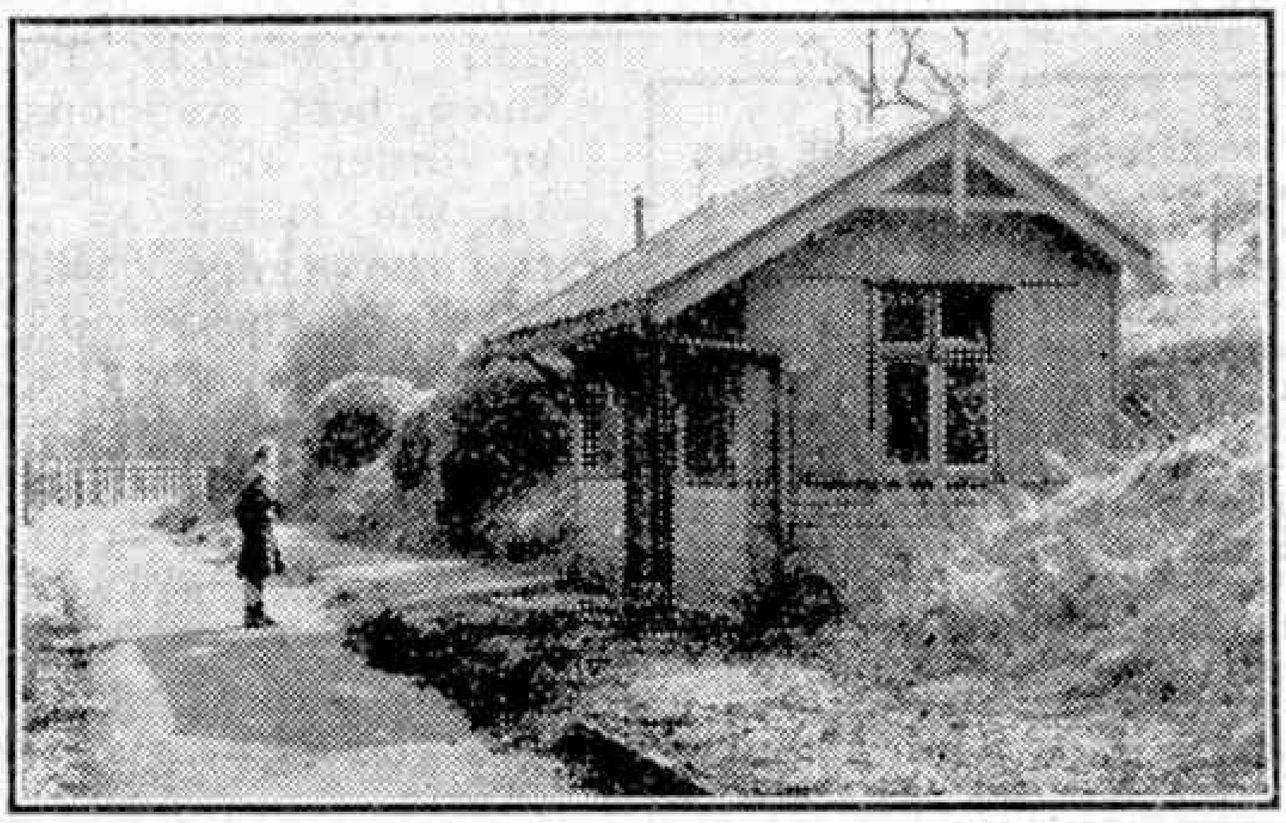
In our March issue we informed readers, and particularly officials and members of Meccano Clubs and H.R.C. Branches, that railway lantern slides and films were available on loan from the L.N.E.R. We now learn that the only films possessed by the L.N.E.R. at present are primarily for record purposes, and are not usually available for loan, while only a limited number of slides of a scenic character are available. These slides are held by the Advertising Manager, L.N.E.R., Marylebone Station, London N.W.1. We should be glad if Club and Branch officials would note this correction.

From Our Readers

This page is reserved for articles from our readers. Contributions not exceeding 500 words in length are invited on any subject of which the writer has special knowledge or experience. These should be written neatly on one side of the paper only, and should be accompanied if possible by original photographs for use as illustrations. Articles published will be paid for. Statements in articles submitted are accepted as being sent in good faith, but the Editor takes no responsibility for their accuracy.

RAILWAY STATIONS, BUT NO TRACK!

In the Manifold Valley, Staffordshire, may be seen several railway stations and yet there is no track. The explanation is that the line, the Leek and Manifold Light Railway, was closed in 1934. When



A railway station without a track, on the former Manifold Light Railway, Staffordshire. Photograph by F. Rodgers, Derby.

the L.M.S., the owners of the line, decided to take up the rails they graciously presented the right of way as a path for public use. It was then asphalted, and the stations were left as shelters. This stretch of path, between Waterhouses and Hulme End, passes through the fine scenery of the Manifold and Hamps Valleys, the clear streams of which have the disconcerting habit of disappearing underground during dry periods.

As the name shows, the track was a small gauge one. It was opened in June 1904 and was worked and maintained by the North Staffordshire Railway, which became part of the L.M.S. on amalgamation. Making it into a public footpath was a fine public-spirited gesture on the part of the L.M.S.

F. Rodgers (Derby).

A MALDIVIAN MINARET

An interesting minaret of an unusual type is that of the Jama Masjid or Hukuru Misket, the principal mosque at Male in the Maldive Islands. This minaret dates from A.D. 1674. It is about 50 ft. in height and consists of a large round white tower, on top of which is another smaller tower, giving the whole structure a wedding-cake effect. Half-way up the lower tower are verses from the Koran painted in blue relief. This structure, a drawing of which is reproduced here, is pictured on current stamps of the Maldive Islands.

The mosque itself is not of great interest architecturally. Surrounding it are Ziarats or shrines of saints and many graves. The shape of the headstones of these graves indicates whether the buried person is male or female, pointed for male and round for female.

The Maldivians are now Mohammedans of the Sunni sect, but there are many Buddhist remains on the islands. I first saw these on the island of Gan, one of a group of islands known as Addu Atoll, after a clearing had been driven through the vegetation for the making of an airstrip. Not a great deal remained of them, except a hill of rubble and various foundations over a wide area. From inscriptions on them in Sanskrit and Pali they were found to date back to centuries before the Christian era.

A. E. Weightman (Barry).

Hukuru Misket, the principal mosque at Male, in the Maldive Islands. Drawing by A. E. Weightman, Barry.

FISHING WITH THE SEINE NET BOATS

Not long ago I had the chance to go out fishing for flat fish off Coquet Island, on the Northumbrian Coast. It was 2 a.m. when we reached the harbour. Our boat was ready, with the engine ticking over, so we chugged out of the harbour and out to the cold open sea.

There was a pale light in the east when the first "cast" was made. A buoy with a rope attached was dumped overboard and we moved away, paying out the rope till the buoy disappeared in the halt light, which made the water seem dark and sinister. After about a mile of rope had disappeared into the water the net was reached. This is something like a stocking in shape, about 150 yds. long, with its mouth held open by means of weights on the bottom and corks and glass floats on the top. Our boat then returned to the buoy with the help of a compass. All the time a rope attached to the opposite side of the net was being paid out. We caught the buoy and attached the two lines to the winch. We towed it for about 10 minutes, so that the ropes came together, and then we began to haul in, the ropes looking as stiff as iron rods with the strain. One man worked the winch, while a second coiled the ropes, and at last the net appeared, seething with fish.

The deck ran with flapping fish when the catch was hauled up on deck and the bag undone. There were huge skates, halibut, plaice and sole, with a few jelly fish and squid as well.

During the day we had had seven hauls and caught about 90 stone of flat fish. I returned home with a bag full of plaice and an invitation to go again.

H. R. Temperley (Sunderland).

Competitions! Open To All Readers

Prize-winning entries in "M.M." competitions become the property of Meccano Ltd. Unsuccessful entries in photographic, drawing and similar contests will be returned if suitable stamped addressed envelopes or wrappers are enclosed with them.

Hidden Advertisements

This month we have a contest based on the advertisements in the Magazine, which are always a source of the greatest interest to readers. It provides them with a really interesting hunt.

In the panel on this page are 14 clues. Each of these is based on a fact given in the announcements of one of our advertisers this month, and entrants are asked to identify these.

In order to make the idea clear let us take Clue No. 1: *"This firm works only through the post."* Careful search through the advertisements reveals that this refers to that of the Birkdale Stamp Co. on page 216. It is based on the note *"Postal business only,"* which is a feature of this advertisement.

1. **This firm works only through the post.**
2. **They have three millions of them.**
3. **Stamped with modern ideas.**
4. **The parrot has the right word for it.**
5. **Will send you something to surprise you.**
6. **This sustains, energises and nourishes.**
7. **Offers you the experience of 56 years.**
8. **An advertiser who gives nothing away.**
9. **Brains in a curious place, perhaps, but effect excellent.**
10. **Here is a mixture of bird, baby and what not, but all for flight.**
11. **Prepared to work on a colossal scale.**
12. **Have branches here, there and everywhere.**
13. **Tells you it's time you had one.**
14. **Gives advice on reaching perfection.**

As usual, there will be two sections in this competition, for Home and Overseas readers respectively, and in each there will be prizes of 21/–, 15/– and 10/6 for the three best solutions in order of merit. In the event of a tie the judges will take neatness and novelty of the entries into consideration. In addition to the principal prizes there will be consolation awards for other good efforts.

Entries should be addressed *"May Advertisement Contest, Meccano Magazine, Binns Road, Liverpool 13."* The closing date in the Home Section is 30th June, in the Overseas Section 31st December.

Find these Station Names

Most of the railway enthusiasts among our readers are familiar with the names of many stations, and here is a competition that will enable them to test their knowledge. Below is a series of phrases that give clues to names, some of which are of a quaint or unusual type. Taking the first one, *"Crossing in the Sky"* will be found after careful study to be *"Star Crossing"* on the L.M.S. The solving of the remainder will be found to be pleasant and interesting, and not too difficult a task.

1. Crossing in the Sky.
2. A virtue.
3. Suggests the countryside.
4. Destroyed building.
5. Lifeless pool.
6. Metal highway.
7. Number of monarchs.
8. Famous forest.
9. Stop in a ditch?
10. Four of them, in Wales.
11. Heard at reveille.
12. Bought at refreshment rooms
13. Hot animal lair.
14. Suggests sweeping floors.
15. Proverbially hard.
16. Seen on the seashore.
17. A country raised?
18. Lengthy building.

The competition is in the usual two sections, for Home and Overseas readers respectively, and in each prizes to the value of 21/–, 15/– and 10/6 will be awarded, with consolation prizes for other deserving efforts. Neatness and originality will be taken into account when the entries are judged.

Solutions should be written on a postcard and addressed to *"May Station Contest, Meccano Magazine, Binns Road, Liverpool 13,"* and posted to reach this office by 30th June for the Home Section and 31st December for Overseas readers.

May Photographic Contest

This month's photographic contest is the 5th of our 1947 series, and in it, as usual, prizes are offered for the best photographs of any kind submitted. There are two conditions—1, that the photograph must have been taken by the competitor, and 2, that on the back of the print must be stated exactly what the photograph represents. A fancy title may be added if desired.

Entries will be divided into two sections, A for readers aged 16 and over, and B for those under 16. They should be addressed: *"May Photographic Contest, Meccano Magazine, Binns Road, Liverpool 13."* There will be separate sections for Overseas readers, and in each section prizes of 15/– and 7/6 will be awarded. Closing dates: Home Section, 31st May; Overseas Section, 29th November.

Competition Results and Solution

HOME

DECEMBER 1946 "JIG-SAW" CONTEST

1st Prize: P. D. Hancock, Edinburgh 9. 2nd Prize: R. H. Brown, Wallington. 3rd Prize: J. R. Mizen, Kingston Vale. Consolation Prizes: B. R. M. Munden, Surbiton; G. Ogilvie, Edinburgh 4; A. Coles, Brackley; P. Tilbrook, London N.13; G. Taylor, Chaddesden.

DECEMBER 1946 RAILWAY QUIZ CONTEST

1st Prize: F. Mills, Kearsley. 2nd Prize: J. J. Nesbit, Manchester 21. 3rd Prize: J. L. Makin, Derby. Consolation Prizes: T. Beebe, Horncastle; I. Baker, Bristol 6; J. A. Burton, Hungerford.

DECEMBER 1946 PHOTOGRAPHIC CONTEST

1st Prize, Section A: W. C. Brown, Hove 4. Section B: J. P. Taylor, Rugeley. Second Prize, Section A: F. G. Reynolds, Sidcup; Section B: E. J. Baker, Radford. Consolation Prizes: P. A. Lawson, Sutton Coldfield; L. A. C. Pethybridge, Newton Abbot; D. A. Brockies, New Eltham, S.E.9; F. Mills, Kearsley; G. Ogilvie, Edinburgh 4; G. Hodges, Harwell W.7; J. Andrews, Exeter.

JANUARY 1947 COVER VOTING CONTEST

1st Prize: C. J. Dalton, Pendeen. 2nd Prize: A. Walker, Banbury. 3rd Prize: D. N. Brooks, Newark. Consolation Prizes: E. Allingham, Bedford; T. A. Jupp, Hull; J. Chapman, Eastville; S. Green, Whitstable; A. Stewart, Glasgow E.1.

JANUARY 1947 TUNNELS CONTEST

1st Prize: C. E. Wrayford, Bovey Tracey. 2nd Prize: P. Thurman, New Barnet. 3rd Prize: J. A. Graham, Falmouth. Consolation Prizes: M. Hoskins, Exeter; R. B. Hudson, Leeds 12.

JANUARY 1947 PHOTOGRAPHIC CONTEST

1st Prize, Section A: N. V. Salt, Didsbury; Section B: D. Clark, Nottingham. 2nd Prize, Section A: W. Barr, Tranmere; Section B: J. E. W. Paige, Chelsfield. Consolation Prizes, Section A: R. Wrigley, Clitheroe; S. S. Pethybridge, Newton Abbot; D. Faulkner, London S.W.1; Section B: D. T. Jones, Bridgend; T. West, Sheffield 5.

FEBRUARY 1947 PHOTOGRAPHIC CONTEST

1st Prize, Section A: E. Holley, Heathfield; Section B: D. T. Jones, Bridgend. 2nd Prize, Section A: J. H. Taylor, Aberdeen; Section B: E. J. Baker, Coventry. Consolation Prizes, Section A: W. R. H. Temple, Upminster; F. Mills, Kearsley; R. Wrigley, Clitheroe; N. Boyd-Maunsell, Oxford; J. D. M. Colebrooke, Westcliffe-on-Sea. Section B: L. Rose, St. Helens; J. P. Moore, Birmingham 28; P. Miller, Stockton-on-Tees.

OVERSEAS

JUNE 1946 PHOTOGRAPHIC CONTEST

1st Prize, Section A: L. W. Humm, Geraldine, N.Z.; Section B: L. Sudbury, Montreal, Canada. 2nd Prize, Section A: K. T. Beck, New York, U.S.A.; Section B: R. Hardy, Cape, S.A. Consolation Prize: C. J. Ricketts, Potchefstroom, S.A.

JULY 1946 CROSSWORD PUZZLE

1st Prize: L. H. Brittain, Onehunga, N.Z. 2nd Prize: W. W. Jenson, Wellington, N.Z. 3rd Prize: D. J. White, Christchurch, N.1, N.Z. Consolation Prize: E. Thornton, Port Elizabeth, S.A.

JULY 1946 "HIDDEN ENGINES" CONTEST

1st Prize: N. Burke, Toronto, Canada. 2nd Prize: J. Bates, Bombay, India. 3rd Prize: V. Preston, Wellington, C.1, N.Z. Consolation Prizes: D. J. White, Christchurch, N.1, N.Z.; Jos. M. Demanuele, St. Julians, Malta, G.C.

JULY 1946 PHOTOGRAPHIC CONTEST

1st Prize, Section A: D. Jones, Auckland, S.E.5, N.Z.; Section B: D. C. Smith, Cape Province, S.A. 2nd Prize, Section A: J. M. Demanuele, St. Julians, Malta, G.C.; Section B: M. Hewitt, Wellington, N.Z. Consolation Prize: L. W. Humm, Geraldine, N.Z.

"The Young Bookworm." An interesting Child Study photographed by L. W. Humm, Geraldine, N.Z. Awarded First Prize, Section A in the August 1946 Photographic Contest (Overseas).

AUGUST 1946 PHOTOGRAPHIC CONTEST

1st Prize, Section A: L. W. Humm, Geraldine, N.Z.; Section B: P. T. Tomlinson, New York, U.S.A. 2nd Prize, Section A: V. Hodgeson, Delhi, India; Section B: K. L. Bonnar, Durban, S.A. Consolation Prize: R. H. Clatworthy, Salisbury, S.A.

SOLUTION

SEPTEMBER "SIGNALLING STORY"

Signalling; Block; interval; communication; Policeman; interlocked; Block; space; track; power automatic; light; train control; express.

Fireside Fun

New Boarder: "I wish I had come here a week ago."
Landlady: "You like being here, then, sir."
New Boarder: "Well, not exactly. I just mean that I would rather have eaten this fish then."

* * * *

"Be careful, Johnny. That paint's wet."
"All right, ma, I've got my gloves on."

* * * *

"What has green eyes, lots of legs, and yellow and black stripes all over it?"
"I give in. What is it?"
"I don't know, either, but it's on the back of your neck."

* * * *

Two thieves were ransacking a room in an American hotel when there came a loud knock on the door.
"Open up there," shouted a loud voice. "Police."
"Come on," cried one of the thieves. "Out of the window."
"But we're on the 13th floor."
"What of it? This is no time to get superstitious."

* * * *

"What's the hardest thing when you are learning to ride a bicycle?"
"The road."

* * * *

"This man's injuries are peculiar," said the medical officer. "How did he get them, orderly?"
"Well, sir, he was a chauffeur before he joined up, an' when the mule stopped he crawled underneath to see what was wrong."

* * * *

* * * *

THIS MONTH'S HOWLER

A conservative is a large glass house where plants grow; a liberal gives everything away gladly.

BRAIN TEASERS

JUST RE-MOVE THEM!

Here are some well-known locomotive names that have been disguised by "moving" the letters about. Can you pick them out? RFTCDAELSAIFC; CKWLHCAABT; APIMAL; ESUBRTAL; YTIROVC; and HAREUCHOSRET. B.I.N.

* * * *

A SLIPPY TASK

A garage at which a motorist called for a gallon of oil seems to have been a strange place, for the only oil available was in three vessels, of capacity 8, 5 and 3 gallons respectively, and in order these three actually contained 5 gallons, 3 gallons and 2 gallons. At first it seemed impossible to measure out one gallon from this array, but after scratching his head a bit the garage owner proved equal to the task. How did he do it? S.W.C.

* * * *

"Could I borrow your rug-beater, Mrs. 'Arris?"
"I'm sorry, but he doesn't get home till 6."

* * * *

GRAND OLD LADIES

When a bag or trunk has made repeated trips by rail it usually carries the remnants of many labels, for these are left to wear off, or only part is torn away or covered by new labels. It is good fun to try to trace the adventures of a trunk carrying fragments of this kind. Where, for instance, do you think the owner of a trunk has been if the eight bits and pieces on it make up the following astonishing statement: "MY OLD AUNTS SCORE GOALS AT ANFIELD?" One of the stations was a famous London terminus.

* * * *

THE DUCHESS'S DIAMONDS

Let us now look at the Duchess's diamonds. There were 15 of these, set in a brooch shaped like a horse-shoe, with the largest and most valuable diamond in the middle. The sides were so arranged that, starting from one end and proceeding towards the middle, each diamond was worth £40 more than its predecessor, and starting from the other end there was an increase in value on passing from each diamond to the next of £50. If all the diamonds were worth £4,230 what was the value of the largest? T.K.C.

* * * *

SOLUTIONS TO LAST MONTH'S PUZZLES

The aunt's brother of the small boy of our first puzzle last month is his father.

The words satisfying the seven clues in our second puzzle are IN, KIN, LINK, LIKEN, NICKEL, CRINKLE, and CLINKERS.

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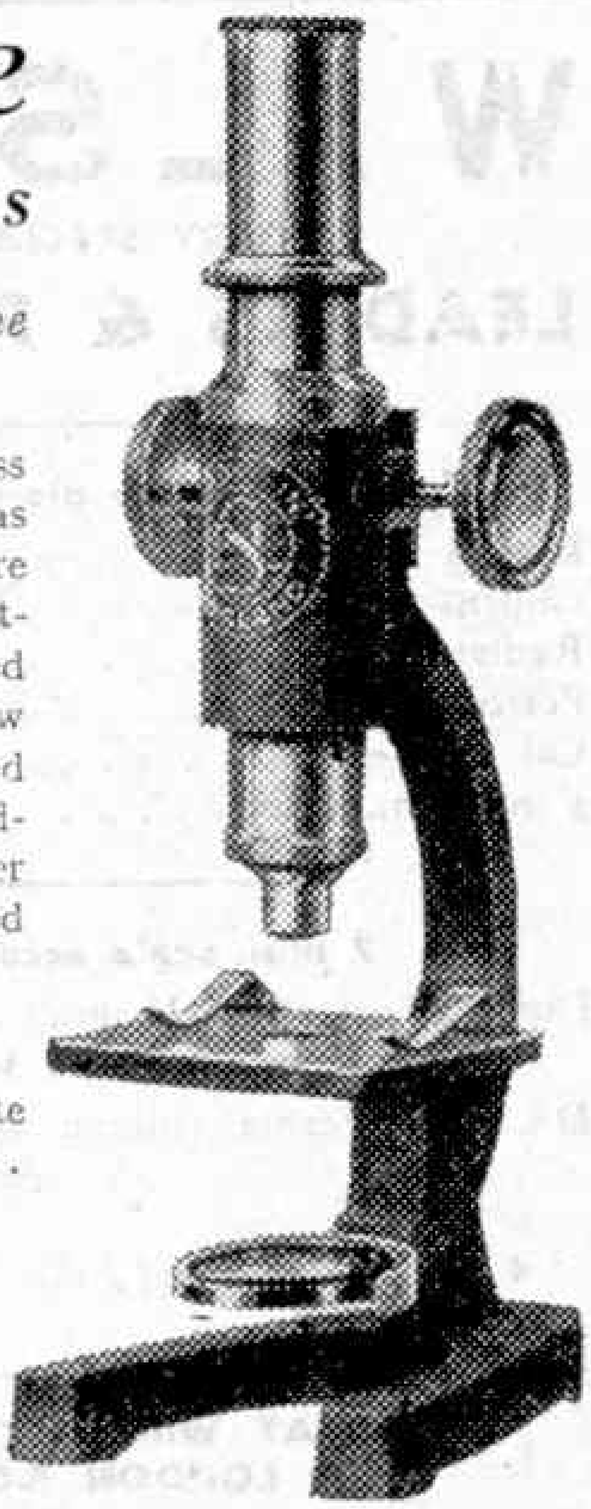

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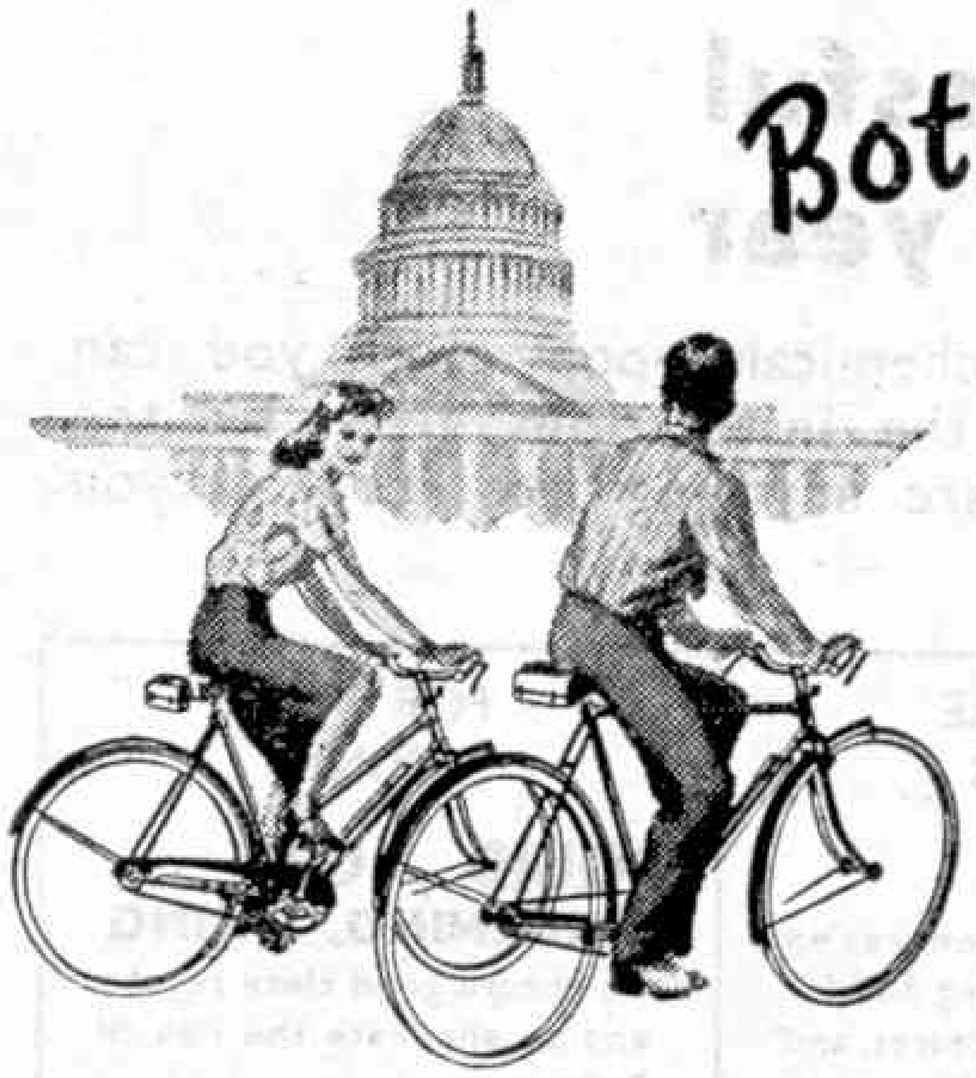

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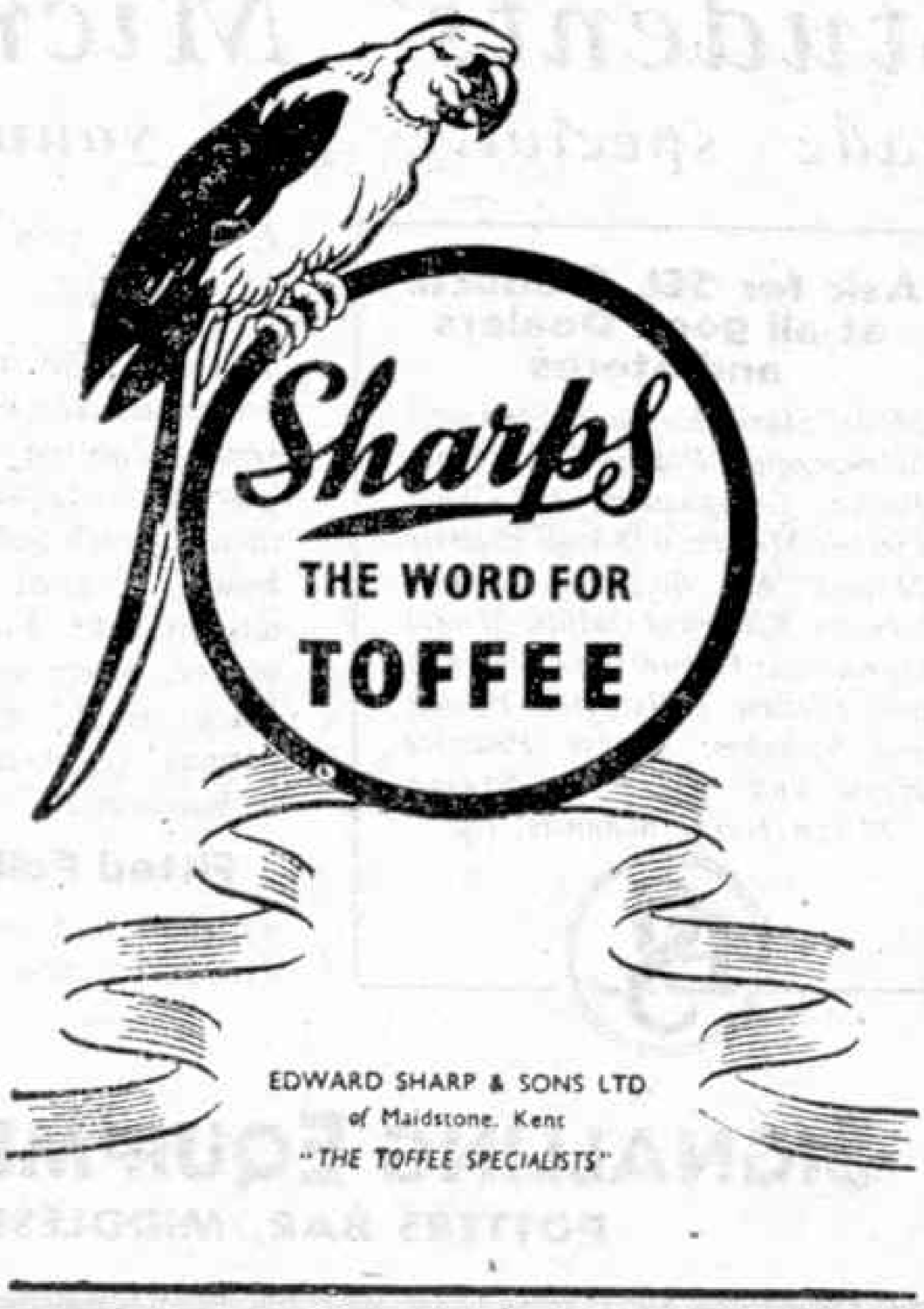

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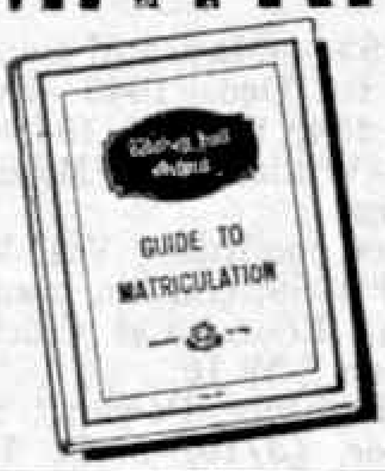

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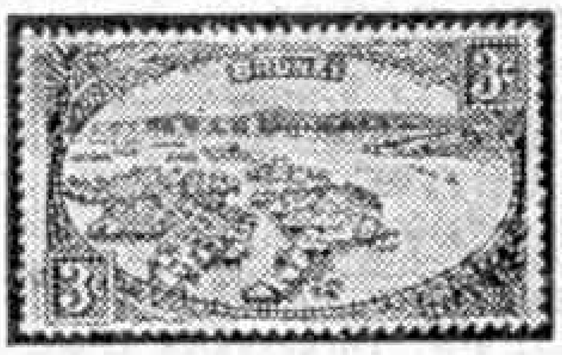

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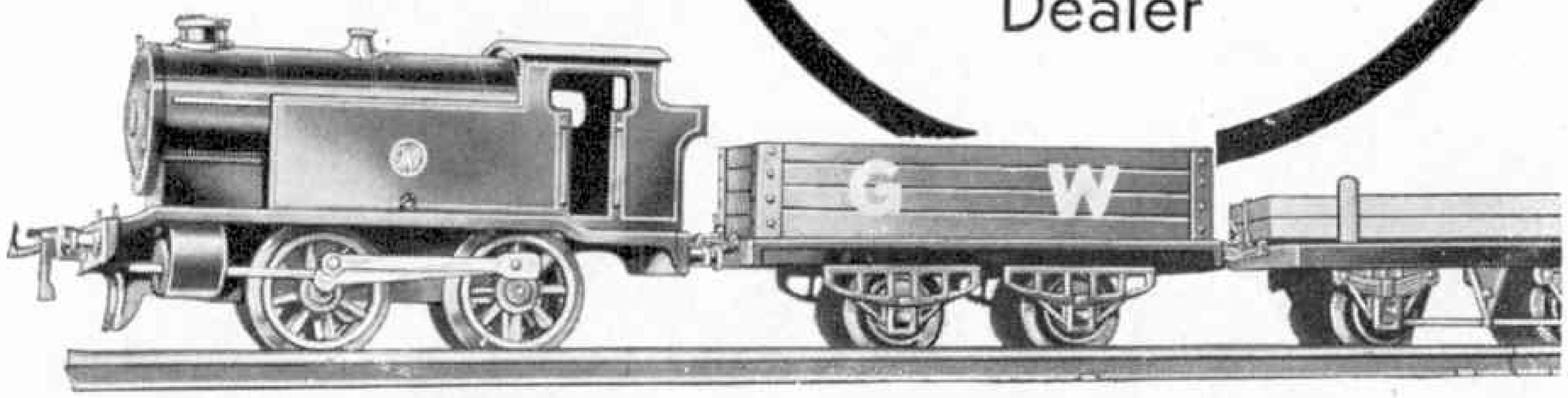

Model Building Days are here again

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ONLY
from Meccano

With increased equipment and personnel, we are doing our utmost to expand the volume of our production so as to satisfy a demand that still greatly exceeds our output. Further supplies will be sent to our Dealers as soon as possible.

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MECCANO

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